NATIONAL SECURITY SPACE
ACQUISITION POLICY

GUIDANCE
for
DoD Space System Acquisition Process

1. PURPOSE
This document provides acquisition process guidance for the Department of Defense (DoD) entities that are part of the National Security Space (NSS) team.

2. AUTHORITY
2.1 <u>DoD Space Milestone Decision Authority</u>
The Under Secretary of the Air Force (USecAF) is the DoD Space Milestone Decision Authority (MDA) for all DoD Space Major Defense Acquisition Programs (MDAPs). This authority has been delegated by the Defense Acquisition Executive (DAE) through the Secretary of the Air Force (SecAF) to the USecAF (Ref: 14 Feb 02 USD(AT&L) & 14 Mar 02 SecAF memos) and cannot be delegated further.

2.2 <u>DoD Space Program Acquisition Execution Chain</u>
The responsibility for the execution of DoD space system MDAPs flows from the DoD Space MDA, through the Component Acquisition Executive (CAE), to the appropriate Space Program Executive Officer (PEO) and space System Program Director (SPD)/Program Manager (PM). SPDs, PMs, PEOs, and other General Officers/Senior Executive Service members serving in critical acquisition billets shall be assigned in accordance with the Defense Acquisition Workforce Improvement Act (DAWIA). (Ref: National Security Decision Directive 219 & DAWIA, 10 USC 1701-1763.)

3. APPLICABILITY
National Security Space is defined as the combined space activities of the DoD and National Intelligence Community (IC). This policy describes the streamlined decision making framework for all DoD space system MDAPs. It is authorized per DoDD 5101.2 para 6.2.9 and supersedes *NSS Acquisition Policy 03-01* dated 6 Oct 03. National Reconnaissance Office (NRO) *Directive 82-2b, Acquisition Management - Directive 7*, describes a similar acquisition process for the IC portion of the NSS team.

3.1 <u>DoD Space Acquisition Programs</u>
A DoD space acquisition program is a program that is listed in the space virtual Major Force Program (vMFP) as maintained by the Director, Program Analysis and Evaluation (PA&E). The vMFP can be found as a table within the President's Budget submission.

3.1.1 <u>DoD Space Major Defense Acquisition Programs</u>
A DoD Space MDAP is a space acquisition program that is designated by the DoD Space MDA or DAE (USD(AT&L)) as special interest or estimated by the DoD Space MDA to require an eventual total expenditure for research, development, test, and evaluation (RDT&E) of more than $365 million in fiscal year (FY) 2000 constant dollars; or, for procurement, of more than $2.19 billion in FY 2000 constant dollars.[1] Highly sensitive classified programs as defined by 10 USC 2430 are not Space MDAPs.

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[1] The dollar requirements are established by statute in FY 1990 dollars. The dollar amounts have been updated in accordance with procedures identified in the statute. The definition is based on Title 10 USC 2430 and is also the DoD definition of an Acquisition Category (ACAT) I program

3.1.2 <u>DoD Space Non-MDAPs</u>

A DoD Space Non-MDAP is a program that does not meet the criteria in paragraph 3.1.1. Non-MDAPs include "major" systems as defined in 10 USC 2302d and "non-major" systems. The MDA for DoD Space Non-MDAPs is the CAE or CAE-designated representative (e.g., PEO).

3.1.2.1 <u>DoD Space "Major System"</u>

A DoD Space Program is a "major system" if it is estimated by the DoD Component Head to require an eventual total expenditure for RDT&E of more than $140 million in FY 2000 constant dollars, or, for procurement, of more than $660 million in FY 2000 constant dollars or if designated as "major" by the DoD Component Head. The estimate shall consider all blocks that will make up an evolutionary acquisition program to the extent subsequent blocks can be defined.[2] A DoD Space Program is a "non-major" system if it does not meet the criteria for a DoD Space MDAP or a DoD Space major system.

3.2 <u>Automated Information Systems</u>

DoD space programs are not considered Automated Information Systems since they are not acquired as purely Information Technology (IT) systems. The IT components of NSS systems are integral parts of DoD space programs. Compliance with the Clinger Cohen Act (CCA) is required and will be documented in the appropriate sections of the Integrated Program Summary (IPS). Per the 8 Mar 02 Clinger-Cohen Act Compliance Policy joint memo from Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) and Assistant Secretary of Defense (Network and Information Integration (ASD(NII)), a separate, written CCA compliance *certification* by the Military Department (MILDEP) Chief Information Officer (CIO) <u>is not</u> required for DoD Space programs; however, MILDEP CIO *confirmation* of CCA compliance <u>is</u> required. The requirement for MILDEP CIO confirmation can be satisfied by obtaining the MILDEP CIO's concurrence on the SPDs/PMs answers to the questions listed in the CCA Compliance Table (see E4.12).

3.3 <u>DoDI 5000.2 Waiver and Exemption</u>

The Space Milestone Decision Authority is authorized to approve waivers and exemptions to provisions of DoD instructions or publications, as defined by DoD Directive 5025.1, to the extent that the instruction or publication, and its subject matter, are under the jurisdiction of USD(AT&L). To use this process, SPD/PMs can request a waiver through their PEO and CAE via a memo to the DoD Space MDA. Once the DoD Space MDA has granted the waiver and exemption, it remains valid for the life of the program unless the DoD Space MDA rescinds the waiver. (The DoD Space MDA waiver authority does not include DoDD 5000.1 or other DoD Directives.) For DoD Space Non-MDAPs, the appropriate CAE or CAE-designated representative (e.g., PEO) has the authority to establish basic acquisition practices and to act as the MDA following DoDI 5000.2 or this policy with approved waiver.

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[2] The dollar requirements are established by statute in FY 1990 dollars. The dollar amounts have been updated in accordance with procedures identified in the statute. The definition is based on 10 USC 2302, 10 USC 2302d, and is also the DoD definition of an ACAT II program.

4. DOD SPACE MDA GUIDING PRINCIPLES

Over the first fifty years of the history of space acquisition, several enduring principles have emerged. The following principles should be considered by all NSS members to set the tone and guide decision making in the acquisition of NSS systems:

a.) <u>Mission Success</u>: The overarching principle behind all National Security Space programs is mission success. When acquiring space systems, mission success must be the first consideration when assessing the risks and trades among cost, schedule, and performance. Risk management, test planning, system engineering, and funding profiles must be driven by this objective.

b.) <u>Accountability</u>: The acquisition execution chain is ultimately accountable for a program's success or failure. The SPD/PM, as the leader of the Government-Contractor team for a program, must be accountable and have the authority to accomplish the program's objectives and meet the user's needs. The PEO or CAE and the DoD Space MDA have the responsibility to provide the SPD/PM with the resources and guidance necessary to accomplish these goals.

c.) <u>Streamlined /Agile</u>: The NSS acquisition team should work to reduce the acquisition decision cycle time and have short, clear lines of authority with decision making and program execution at the lowest levels possible. Staff elements, at all levels, exist to advise the acquisition decision making principals (i.e., DoD Space MDA, CAE, PEO, SPD/PM). No more than two layers can be between the SPD/PM and the MDA. (Ref: 5000.1)

d.) <u>Inclusive</u>: Advice and information should be actively sought from all parties with an interest in NSS programs. A collegial/team relationship among all government, academia, and industry partners is the goal. DoD Space acquisition plans and documents should be coordinated with the appropriate lead user/operating command.

e.) <u>Flexible</u>: The "model" acquisition processes outlined in this document should be tailored to properly fit the circumstances of each NSS program. Only those activities, reports, plans, coordinations, or reviews required by statute or directed by the NSS acquisition execution chain are required.

f.) <u>Stable</u>: Within a given acquisition increment, stable budgets, stable requirements, stable direction, and low personnel turnover are necessary for successful program acquisition. Decisions made by the acquisition execution chain must be durable.

g.) <u>Disciplined</u>: All parties to this space acquisition policy must exercise the discipline necessary to achieve its goals without allowing its procedures to become unnecessarily burdensome and/or time consuming.

h.) <u>Credible</u>: The NSS team must deliver what it promises on schedule and within budget. The NSS process is meant to incentivize and foster quality decision making for programs that exhibit the necessary maturity to proceed into the next acquisition phase.

i.) <u>Cost Realism</u>: The goal is to develop and grow a world-class national security space cost estimating capability. Cost estimates must be independent and accomplished in a timely, realistic, and complete manner. Cost will be controlled by estimating accurately and focusing on quality to reduce rework and achieve mission success. All members of the NSS acquisition execution chain must insist on, and protect, a realistic management reserve.

5. NATIONAL SECURITY SPACE (NSS) ACQUISITION APPROACH

The acquisition of DoD space systems results from the interaction of three complementary processes: the Joint Capabilities Integration and Development System under the authority of the Chairman of the Joint Chiefs of Staff; the Planning, Programming, Budgeting, and Execution process under the authority of the DoD Comptroller; and the NSS acquisition process under the authority of the DoD Space MDA. To work effectively, the acquisition process requires constant coordination among these processes and their authorities.

5.1 Joint Capabilities Integration and Development System (JCIDS)

The JCIDS process identifies, develops, and validates all defense-related capability needs. (For the IC, the Mission Requirements Board (MRB) defines and prioritizes future national foreign intelligence needs within substantive mission areas and drives those needs into intelligence planning, resource, and large system acquisition decisions.) CJCSI 3170.01D describes the JCIDS process and serves as the governing capability needs process document for this NSS policy. A disciplined capability needs process is key to achieving effective and timely acquisitions within expected budgets. Users and operators are responsible for comprehensive, clear, and timely identification of capability needs through the JCIDS process. Space system SPDs/PMs are responsible for supporting the JCIDS process by providing users and operators with timely, credible programmatic implications (cost, schedule, and risk) of meeting operational capability needs. SPDs/PMs should work closely with the users and operators to support the development of the Key Performance Parameters. This will allow the users and operators to make informed decisions. Within the DoD, the capability needs validation authority and acquisition authority are separate.

5.2 Planning, Programming, Budgeting, and Execution Process (PPBE)

The PPBE process translates military capability needs into budgetary requirements, which are presented to Congress for funding consideration. Each of the functions of the PPBE operates on a near-continuous basis throughout the fiscal year. Within the DoD, the budget authority and the acquisition decision authority are separate.

5.3 National Security Space (NSS) Acquisition Process

The NSS model emphasizes the decision needs for "high-tech" small quantity NSS programs, versus the DoD 5000 model that is typically focused on making the best large quantity production decision. The funding profile for a typical NSS program is usually front-loaded when compared to a production-focused system. This requires the key decisions for a NSS program to be phased earlier than the typical DoD 5000 milestone decisions.

The NSS Acquisition Process is a streamlined, tailorable method for the DoD Space MDA to use in the executive management and oversight of the DoD space programs under his authority. The process includes unambiguous acquisition phases, acquisition decision points based on program maturity with focused program assessments, and periodic reports and reviews. This policy includes four amplifying appendices and five enclosures that provide process details as listed below:

    Appendix 1: NSS Space Acquisition Models, Key Decision Points (KDPs), and Acquisition Phases
    Appendix 2: Defense Space Acquisition Boards (DSABs) and the Independent Program Assessment (IPA) Process
    Appendix 3: DoD Space Independent Cost Analysis Process
    Appendix 4: Key DoD Space Acquisition Documentation
    Enclosure 1: IPA Readiness Review Checklist and KDP Entry Criteria
    Enclosure 2: DoD Space Acquisition Documentation Approval / Coordination Requirements Matrix
    Enclosure 3: DoD Space Statutory Reference Information
    Enclosure 4: Integrated Program Summary (IPS)
    Enclosure 5: Acronym List

5.3.1 NSS Acquisition Phases

NSS programs will typically progress through the following four acquisition phases as depicted in Figure 1 and amplified in AP1.2:

Phase A: The Concept Development phase includes concept studies, assessments and requirements (e.g., technology development, Capability Development Document). During this phase, baseline development is mature enough to enter the formal acquisition process.

Phase B: The Preliminary Design phase increases confidence in system alternative(s) by assessing risk levels and projected performance at a detailed engineering level. Activities include efforts to mature technology and baseline management and definitization, which culminate in a Preliminary Design Review.

Phase C: The Complete Design phase includes a baseline design and support concept of sufficient detail to support the Critical Design Review and Capability Production Document development.

Phase D: The Build and Operations phase includes system-level fabrication, integration, testing, deployment, and operational support.
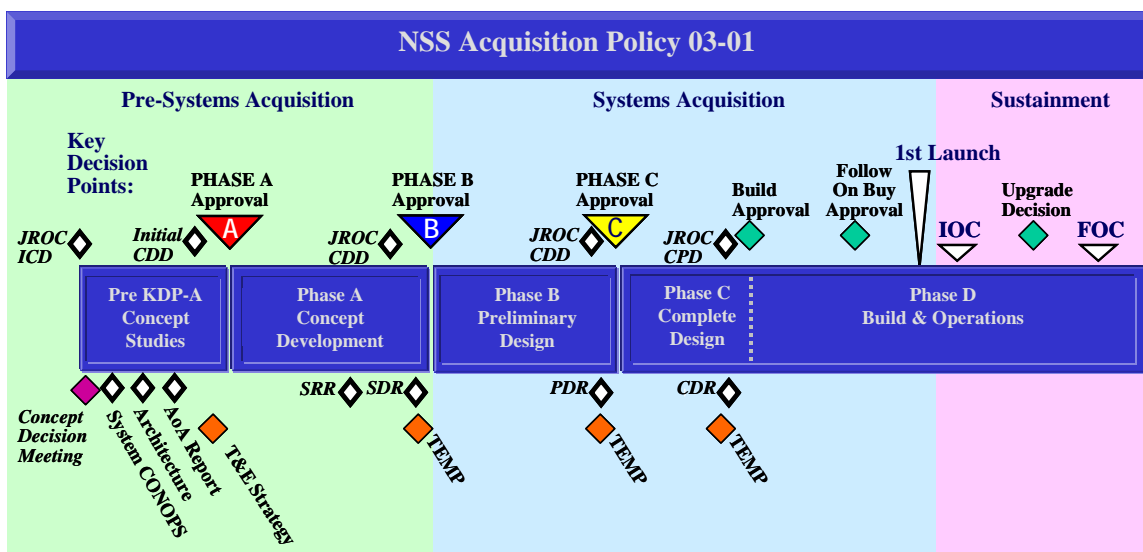

Figure 1: NSS 03-01 Acquisition Phases

5.3.2 Key Decision Points

As a DoD Space MDAP enters and moves through the NSS acquisition process it will reach Key Decision Points (KDPs) where DoD Space MDA approval is required prior to proceeding with the program (Ref: OMB Circular A-109). The KDPs are placed at specific program maturity assessment points occurring between the acquisition phases. KDP entry criteria are found in E1. KDPs provide the DoD Space MDA with structured opportunities to determine whether or not the program is sufficiently ready to proceed into the next acquisition phase. The DoD Space MDA may authorize entry into the acquisition system at any point, consistent with phase-specific entrance criteria and statutory requirements. Progress through the acquisition life cycle depends on obtaining sufficient knowledge to continue to the next stage of development. SPDs/PMs must explain and appropriately tailor, within their Acquisition Strategy, the program's acquisition phases and placement of KDPs and MDA program reviews to meet the program's needs. Typically, Request for Proposals and contracts are awarded after the MDA has approved the Acquisition Strategy and the program has entered the next acquisition phase. Space MDAPs shall be fully funded throughout the acquisition process beginning at KDP-B. Transition into Phase B, Preliminary Design, is when a system concept and design have been selected, a SPD/PM has been assigned, capability needs have been approved, and preliminary design is ready to begin. Transition into Phase B requires full funding commitment. The

DoD Components shall fully fund their share of approved joint and international cooperative program commitments. Additional phase model and KDP information are described in AP1.

5.3.3 Build Approval
Build Approval is a DoD Space MDAP program review held to obtain DoD Space MDA approval to proceed into Phase D. Build Approval entry criteria are found in E1. Details concerning Build Approval scheduling and conduct are the same as for DSABs and described in AP2. Additional phase model and Build Approval information is found in AP1.

5.3.4 Defense Space Acquisition Boards (DSABs)
The DoD Space MDA will convene a Defense Space Acquisition Board (DSAB) at each KDP, inviting appropriate representatives to attend and provide advice. A favorable decision by the DoD Space MDA at a KDP-A, B, or C DSAB authorizes the start of the activities related to that next acquisition phase. To schedule a DSAB, a SPD/PM must forward a written request through the respective PEOs to the DoD Space MDA. Upon notification by the DoD Space MDA, the DSAB Executive Secretary (Director, NSSO) will facilitate the preparation for and execution of the DSAB meeting. Details concerning DSAB scheduling and conduct are described in AP2.

5.3.4.1 Independent Program Assessment (IPA)
Prior to each DSAB, the DoD Space MDA will convene an Independent Program Assessment Team (IPAT) to advise him on a program's readiness to advance into the next acquisition phase. The IPAT's findings and recommendations are presented to the DoD Space MDA at the DSAB and the Build Approval. In preparation for the IPA, the SPD/PM produces a consolidated set of program documentation, known as an Integrated Program Summary (IPS), to facilitate the IPAT review. Details concerning the IPA are described in AP2. Details on an IPS are described in AP4.
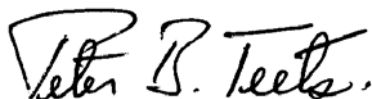
5.3.4.2 Independent Cost Analysis
A cost analysis conducted by an Independent Cost Analysis Team (ICAT) is also presented as part of the DSAB and Build Approval processes. Independent cost analysis details are described in AP3.

5.3.5 Program Reviews and Periodic Reports
SPDs/PMs, PEOs, and/or CAEs will conduct DoD Space MDAP reviews with the DoD Space MDA or his designee twice a year[3] and shall advise the MDA of potential program deviations (see AP4.1.3.1 for statutory reporting requirements). Each Service should continue to submit its Selective Acquisition Reports (SARs), Unit Cost Reports (UCRs), and Defense Acquisition Executive Summary (DAES) reports via its Service processes to the Office of the Secretary of Defense (OSD) Staff. (Ref: the Defense Acquisition Guidebook for DAES, SAR, and UCR procedures.) (Ref: 10 USC 2432 & 2433)

6. IMPLEMENTATION
This policy is effective immediately. Supplements to this policy by MILDEP CAEs and PEOs are authorized but shall be minimized and coordinated with the DoD Space MDA. Questions concerning the implementation of this policy should be addressed to the Deputy for Military Space, SAF/US(D). The DoD Space MDA will approve process changes to this policy.

Peter B. Teets
DoD Executive Agent for Space
DoD Space Milestone Decision Authority

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[3] Expect spring program reviews to occur in April or May and fall program reviews to occur in October or November.

AP1. APPENDIX 1

NSS ACQUISITION MODELS, KEY DECISION POINTS (KDPs), AND ACQUISITION PHASES

AP1.0 Purpose
This appendix describes the decision models used for DoD space systems.

AP1.1 NSS Acquisition Models
DoD space acquisition programs can be grouped into four system types (See Table AP1-1). The acquisition characteristics of Space System Types 1, 2 and 3 are similar to each other but different from Space System Type 4. This difference results in two primary acquisition models that fit most NSS systems, the Small Quantity System model and the Large Quantity Production Focused model.

Space System Type	Examples
1.) Space-based systems	Satellites
2.) Ground-based systems	Satellite command and control (C2), launch C2, ground station payload data processing stations, space surveillance stations, command and control systems
3.) Satellite launch vehicle systems	Boosters, upper-stages, payload processing facilities, space launch facilities, ground support equipment
4.) User equipment	Hand-held user terminals, data reception terminals, user terminals

Table AP1-1: DoD Space Acquisition Program Types

AP1.1.1 Small Quantity System Model
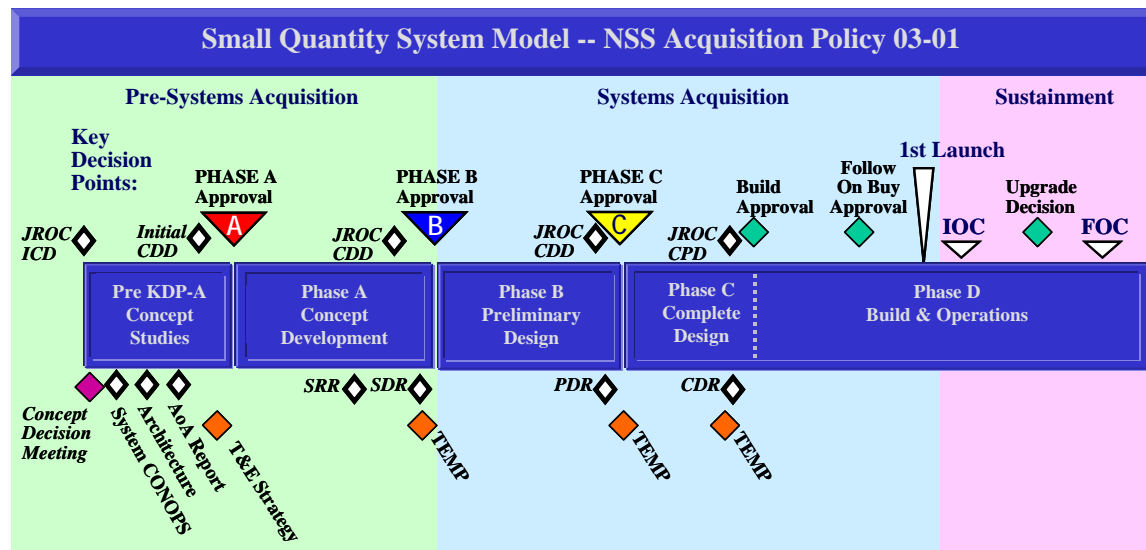This model typically applies to the DoD Space System Types 1, 2 and 3 in Table AP1-1.

Figure AP1-1: Small Quantity Model

Satellite programs, along with their ground stations and boosters, are usually bought in quantities of ten or less. These types of programs usually do not have on-orbit prototypes to select a winner for a production contract. This is due to the expense of the satellites and launch costs. Instead of a "fly-off," the downselect between satellite system contractors usually occurs based on design.

AP1.1.1.1 "Follow-on Buy" Decision

The Follow-on Buy decision is a meeting held by the DoD Space MDA to authorize the follow-on procurement of the additional end items (e.g., satellites) required to complete the planned system buy. The DoD Financial Management Regulation (DoD 7000.14-R), June 2002, volume 2A page 1-28, paragraph 9.b states "The first satellite of a new design is normally placed into operational use. For programs in which satellites are launched individually, the first two satellites may be financed with either RDT&E or Procurement appropriations. The third and subsequent satellites shall in all cases be financed with Procurement appropriation." The Follow-on Buy decision provides the authorization to expend the Procurement funding to complete the initial small quantity procurement. An ICE and an IPA are not required for a Follow-on Buy decision since there should be no appreciable change between the first two end-items that were authorized at Build Approval and the remaining end-items required to complete the buy. The SPD/PM should provide a program status briefing at this meeting, addressing compliance with the Acquisition Strategy, Build Approval direction, and program execution status (e.g., technical, schedule, performance, testing, and cost).

AP1.1.1.2 Post Production Upgrade Decision

If a new requirement drives the need for an upgrade whose total research, development, and production cost exceeds $180 million (in FY2000 dollars) to an approved space system production baseline, then the SPD/PM, through the PEO and DSAB Executive Secretary, will request a DSAB or a waiver to a DSAB from the DoD Space MDA. At a minimum, a Program Office Estimate (POE) should be done to scope the cost of the upgrade. The complexity, cost, risk, and magnitude of the desired upgrade will influence whether a DSAB, with an IPA, will be waived. Additionally the DoD Space MDA will decide which KDP (e.g., KDP-A, B or C) the upgrade will be required to meet in order to begin the acquisition process. The SPD/PM may not initiate any actions to accomplish the system modification prior to MDA determination of the KDP for which to prepare or MDA approval of a waiver to the DSAB. Upgrades with costs below $180 million may be assessed and approved by the appropriate CAE or Service PEO once adequacy of funding has been determined by the CAE or PEO.

AP1.1.2 Large Quantity Production Focused System Model

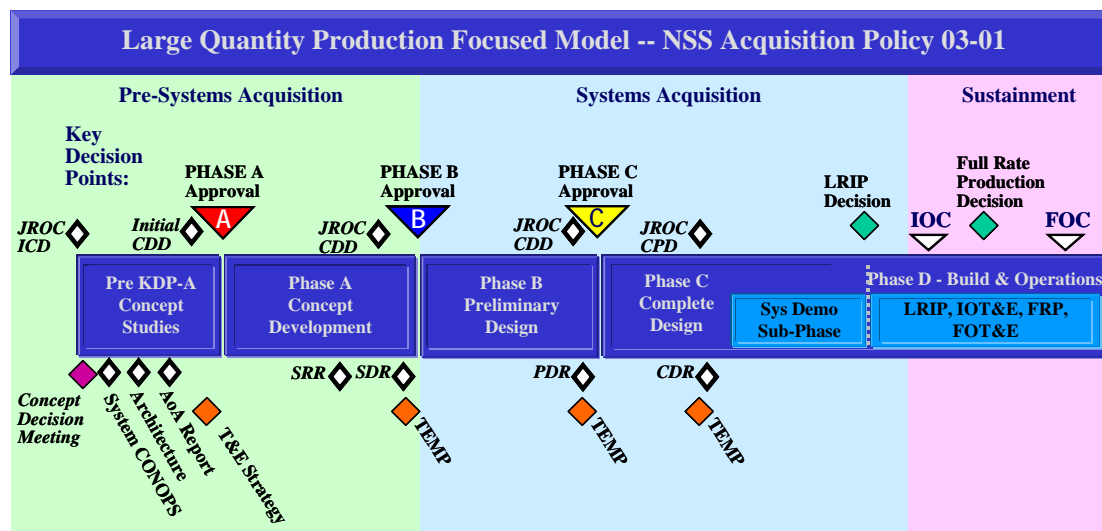This second model typically applies to DoD Space systems Type 4 in Table AP1-1.

Figure AP1-2: Large Quantity Production Focused Model

These systems are typically bought in quantities of 50 or more and tend to follow the more traditional DoD life cycle cost model and acquisition phasing. Figure AP1-2 shows how this NSS policy can be

adapted to add a System Demonstration sub-phase (for demonstrating prototypes), a Low-Rate Initial Production (LRIP) decision, and a Full-Rate Production (FRP) decision for NSS acquisitions of large quantity buys. Even though the LRIP decision point and the FRP decision point are not depicted as KDPs, a DSAB, preceded by an IPA and ICE, will usually be held. The purpose of the IPA and DSAB for the LRIP decision point is to assess the program's readiness to build the initial production items. A JCIDS approved CPD should be in place prior to the LRIP decision meeting. The purpose of the IPA and DSAB for the FRP decision is to assess the program's readiness to begin Full-Rate production.

AP1.1.3 Evolutionary Acquisition

Within both NSS acquisition models, Evolutionary Acquisition (EA) is the preferred strategy for rapid acquisition of mature technology for the user. EA is defined as an acquisition approach that delivers capability in increments, recognizing up front the need for future capability improvements. This approach requires collaboration among the user, tester, and developer. The two main processes to perform EA are:

> a) Spiral Development. In this process, a desired capability is identified, but the end-state requirements are not known at program initiation. Those requirements are refined through demonstration and risk management, there is continuous user feedback, and each increment provides the user the best possible capability. The requirements for future increments depend on feedback from users and technology maturation.
> b) Incremental Development. In this process, a desired capability is identified, an end-state requirement is known, and that requirement is met over time by development of several increments, each dependent on available mature technology.

Evolutionary acquisition has been a cornerstone for space system development since the early 1960's. Incremental software and hardware improvements to the ground-based segments of a space system are commonplace. It is also common to perform incremental upgrades on satellites within a space system or constellation. The SPD/PM should describe the program's EA strategy in the program's Acquisition Strategy. The IPS constitutes the "spiral development plan" for programs using the spiral development process (Ref: Pub. L.107-314, sec 803). A decision to proceed into the next acquisition phase by the DoD Space MDA "approves" the spiral development plan.

AP1.1.4 Earned Value Management System (EVMS)

Regardless of which NSS acquisition model applies, EVMS, with Integrated Baseline Reviews (IBRs), shall apply to all NSS RDT&E contracts, subcontracts, and other transaction agreements and intra-government work agreements with a value of $50 million or more (in FY 2000 constant dollars), or procurement or operations and maintenance contracts, etc., with a value of $315 million or more (Ref: OMB Circular A-11, Part 7 and ANSI/EIA-748 (2002 version). The EVMS is required on all DoD space program related contracts meeting these thresholds unless waived by the DoD Space MDA. The SPD/PM must justify why EVMS methodologies should not apply and are not in the best interests of the government. Waivers should occur prior to KDP-B.

AP1.1.5 Systems Engineering (SE)

Robust SE is essential to the success of any program. Program offices must focus attention on the application of SE principles and practices including software-intensive systems management, throughout the system life cycle. Program offices must elevate these SE principles to a level commensurate with other programmatic considerations such as cost and schedule. (Ref: E4 Integrated Program Summary, E.5.5 Systems Engineering Process Review and Systems Engineering Plan.) The JCIDs process supports development of the operators' initial operational view (OV). It is the role of the program office to develop the systems view (SV) and the technical view (TV) products to ensure the NSS system developed can properly integrate into the larger DoD and IC architectures. The National Security Space Office (NSSO) develops integrated architecture products for NSS systems. (Ref: Chairman of the Joint

Chiefs of Staff Instruction (CJCSI) 3170.01D, the Joint Technical Architecture, and the DoD Architecture Framework and the Defense Acquisition Guidebook).

AP1.1.6 Space System Testing
Developmental Test and Evaluation (DT&E) is the responsibility of the SPD/PM. The office of the Deputy Director of Developmental Test and Evaluation within USD(AT&L), in support of the DoD Executive Agent for Space, should be consulted on the formulation and conduct of the DT&E activities. The Service Operational Test Agency and the Director, Operational Test and Evaluation (DOT&E) are responsible for the formulation and conduct of the OT&E activities. Where appropriate, SPD/PMs should implement a combined DT&E/OT&E approach where key events during DT&E reflect future OT&E test conditions to demonstrate progress towards readiness to enter OT&E. The test program for NSS system testing should be compliant with MIL-STD-1540E and MIL-HDBK-340A. The Parts, Material, and Processes Alert and Pedigree system for NSS systems should follow MIL-STD 1547. SPD/PMs should use the government and industry Standard Practice for System Safety, MIL-STD-882D. Test planning should consider the potential impacts on the environment, personnel, system and public safety and system safety.

AP1.1.7 Human Systems Integration
The PM shall have a comprehensive plan for Human Systems Integration (HSI) in place early in the acquisition process to optimize total system performance, minimize total ownership costs, and ensure that the system is built to accommodate the characteristics of the user population that will operate, maintain, and support the system. HSI planning shall be summarized in the acquisition strategy and address the following: human factors engineering, personnel, habitability, manpower, training, survivability and environment, safety occupational health, as described in DoDI 5000.2.

AP1.1.8 Environmental, Safety, and Occupational Health Evaluation (ESOH)
As part of the risk reduction, the SPD/PM shall prevent ESOH hazards where possible and shall manage ESOH hazards where they cannot be avoided. The acquisition strategy shall incorporate a summary of the Programmatic ESOH Evaluation (PESHE). The SPD/PM should consult the Safety Office and the Environmental Office of their own Service or Agency for guidelines on how to prepare the appropriate PESHE and/or National Environmental Policy Act (NEPA) documents for their program (Ref: 42 USC 4321-4370d & Executive Order 12114). The CAE (or for joint programs, the CAE of the Lead Executive Component), or designee, is the approval authority for system-related NEPA and E.O. 12114 documentation.

AP1.1.9 System Disposal
At the end of its useful life, a system shall be demilitarized and disposed in accordance with the legal and regulatory requirements and policy relating to safety (including space/orbital, systems, and explosive safety), security, and the environment. During the design process, PMs shall document hazardous materials contained in the system and shall estimate and plan for the system's demilitarization and safe disposal.

AP1.1.10 Joint, Cross-Service, and International Management Considerations
SPD/PMs shall pursue joint, cross-service and international collaboration to the maximum extent possible at key decision points. For international armaments cooperation, SPD/PMs shall review and submit a Cooperative Opportunities Document as part of the acquisition strategy. (Ref: DoDD 5000.1, DoDI 5000.2, 10 USC 2350a)

AP1.1.11 Technology Readiness Assessment (TRA)
An accurate TRA is critical to determining program risk. The SPD/PM is responsible for identifying critical technologies and conducting the TRA. For KDP-B and KDP-C, the Component Science and Technology (S&T) Executive will conduct an independent review of the SPD/PM generated TRA. The Component S&T Executive will provide the results of this independent review to the IPAT leader.

AP1.1.12 Protection and Prevention Strategy

NSS systems have become an essential element of our nation's defense. Concurrently, NSS systems face increasing threats that could deny access to and exploit these systems for purposes hostile to US national interest. Threats to NSS systems must be addressed in the acquisition process. The NSS protection strategy is to ensure space capabilities are protected to an appropriate level commensurate with their contribution to national security, considering planned use, consequence of lost or degraded capability, availability of other means and the threat. The prevention strategy is to deny hostile use of NSS systems without unduly disrupting civil and commercial access to outside an area of military operations for homeland security purposes. NSS protection and prevention will be a key interest item for all program reviews and KDP DSABs.

AP1.2 Key Decision Points (KDPs) and Acquisition Phases

KDPs are points in the acquisition timeline of a DoD Space program where the program's maturity is evaluated by the DoD Space MDA to determine its readiness to proceed into the next acquisition phase. The choice of model - "Small Quantity" or "Large Quantity Production Focused" - primarily affects the placement of KDPs within a program's schedule.

AP1.2.1 Pre KDP-A Activities

Prior to meeting a KDP-A, the JCIDS process, the architecting process, and the operators/using entities will have been developing their JCIDS products (e.g., Initial Capabilities Development Document (CDD), Joint Operation Concepts, etc.) with support from the space acquisition organizations as requested. Once it is clear from the JCIDS process that a space system needs to be acquired, the Joint Staff Force Structure, Resources, & Assessment Directorate (J8) will notify the DoD Space MDA.

AP1.2.1.1 Concept Decision Meeting

The DoD Space MDA convenes the Concept Decision Meeting with the J8, Director, PA&E appropriate OSD Principle Staff Assistant. The J8 and/or concept sponsor (as defined in CJCSI 3170.01D) will brief the results of the JCIDS effort at the Concept Decision Meeting. The briefing will present a recommended plan for analyzing alternatives to meet the capability gap identified by the warfighter. From this briefing the DoD Space MDA with advice from the Dir PA&E will provide initial guidance for development of the Analysis of Alternatives (AoA).

AP1.2.1.2 Stand Alone AoA

If a separate AoA is required, the DoD Space MDA will designate the appropriate entity to perform the AoA. The Director, PA&E provides initial guidance for the development of the AoA, as approved by the MDA. The entity selected to perform the AoA will provide an analysis plan to the Director, PA&E for review prior to the start of the AoA. The AoA report should be provided to the Director, PA&E in time to allow PA&E's review prior to the start of the Independent Program Assessment for KDP-A. (See AP2.1.8)

AP1.2.1.3 System-Level Concept of Operations (CONOPS)

In addition to the concept of operations materials described as part of the JCIDS process, the concept sponsor also needs to provide a system-level CONOPS that is focused on the system being acquired. The system-level CONOPS is to be a high level written description of a space system that identifies the system's purpose, operational assumptions, the desired effects, how the system will be used, and who is envisioned to operate and use it. It should include a description of the operational nodes and a high level description of the connections between the nodes and the elements of the space system. The sufficiency test for a system-level CONOPS is whether sufficient written detail has been provided in order to generate the required Operational View architecture products for the Initial Capabilities Document (ICD). By KDP-A, the operational architecture should be fully approved and appropriately

coordinated. Full coordination and resolution of all issues within a system-level CONOPS is not mandatory at KDP-A. Items identified as "To Be Resolved" (TBR) or "To Be Determined" (TBD) are cceptable since resolution of these types of issues is the purpose of Phase A. Full coordination with appropriate stakeholders and resolution of the TBR and TBD issues needs to occur by KDP-B since system-level CONOPS issues can be design drivers.

AP1.2.1.4 Acquisition Office KDP-A Preparation

At the Concept Decision meeting, the DoD Space MDA will designate a lead acquisition office to begin the preparation for a KDP-A DSAB. The lead acquisition office produces the Acquisition Strategy and IPS. The lead acquisition office will conduct concept studies to include identifying pertinent technologies and potential solutions. (See E1 for KDP entry criteria, AP2 for details on the DSAB preparation process, and AP4 for Acquisition Strategy and IPS preparation guidance.)

AP1.2.2 KDP-A for Concept Development Phase Entry

The purpose of KDP-A is to determine a program's readiness to enter the concept development phase. Due to special circumstances (e.g., senior leadership direction), some programs start Phase A activities without a formal KDP-A. In these cases, the DoD Space MDA will still provide an Acquisition Decision Memorandum (ADM) for Phase A activities. In such cases, an approved ICD and initial CDD shall document the need for the capability prior to commencing Phase A. (See E1 for a list of products that should be available prior to starting the KDP A IPAT.)

AP1.2.3 Phase A, Concept Development Phase

The activities of this phase typically include concept development and trade studies, system architecture development, assessment of vulnerability and protection mitigation measures, technology development and technology maturity assessments, risk reduction, requirements development, support concept trade studies, Test and Evaluation Master Plan development, development and drafting of Information Support Plan (ISP), initial PESHE planning, initial design supporting functional baseline development, and industrial capability assessments for key technologies and components. The results of Phase A activities will provide critical input to the JCIDS process and will be the basis for an affordable program baseline that can satisfy the users requirements and can be executed at the start of Phase B. In addition to complying with the direction contained in the KDP-A ADM see E1 for the tasks that should typically be completed and documented in the IPS to successfully complete Phase A.

AP1.2.4 KDP-B for Preliminary Design Phase Entry

The purpose of KDP-B is to determine the program's readiness to begin the preliminary design development activities of Phase B. KDP-B is the official "Program Initiation" point for a NSS program. Program Initiation is the point within a MDAP where it is appropriate to submit SARs to the Congress and require a formal Acquisition Program Baseline (APB). For DoD Space programs, program initiation typically occurs with the establishment of a program office and the approval by the DoD Space MDA to proceed into the Preliminary Design Phase or "Phase B" of a program at the KDP-B DSAB. The DoD Space MDA shall identify the full funding required for a DoD Space MDAP at KDP-B. Transition into Phase B requires full funding commitment. A SPD/PM will be designated and a program office established no later than KDP-B. (See E1 for a list of products that should be available prior to starting the KDP-B IPAT.)

AP1.2.5 Phase B, Preliminary Design Phase

The purpose of this phase is to conduct preliminary design development activities. Phase B is designed to increase confidence in the selected NSS system alternative(s) by assessing the estimated risk levels and projected performance envelope at a detailed engineering level. Where feasible, critical technology should complete testing in a relevant environment during Phase B. Technology, which has not been tested in a relevant environment, should be moved to the next increment. Additionally, Phase B provides critical input to the JCIDS process, and in conjunction with Phase C, will allow a well-founded Capability Production Document (CPD) to be generated and validated in time to support

the Build Approval. In addition to complying with the direction contained in the KDP-B ADM, see E1 for the tasks that should typically be completed and documented in the IPS to successfully complete Phase B.

AP1.2.6 <u>KDP-C for Complete Design Phase Entry</u>
The purpose of KDP-C is to determine the program's readiness to begin the final design development activities of Phase C. A key aspect of KDP-C is to assess the program's progress towards meeting the baseline established at KDP-B. (See E1 for a list of products that should be available prior to starting the KDP-C IPAT.)

AP1.2.7 <u>Phase C, Complete Design Phase</u>
The purpose of this phase is to conduct the design development activities. Phase C is designed to further increase confidence in the selected NSS system alternative(s) by assessing the estimated risk levels and projected performance envelope at a more detailed engineering level. Additionally, Phase C provides critical input to the JCIDS process, allowing a well-founded CPD to be generated and validated in time to support the Build Approval (LRIP decision meeting for production-focus model.) If the program is following the "Production Focused" acquisition model, the JCIDS process will continue to develop the CPD in parallel with the system demonstration activities. The CPD should be approved prior to the LRIP Decision meeting. In addition to complying with the direction contained in the KDP-C ADM, see E1 for the tasks that should typically be completed and documented in the IPS to successfully complete Phase C.

AP1.2.8 <u>Build Approval for Build Phase Entry</u>
The purpose of Build Approval is to authorize the conduct of all acquisition-related activities associated with fabrication, testing, deploying (e.g., launch), and supporting operations of new space systems. These activities constitute Phase D. The Build Approval is an MDA program review. Although the Build Approval is not a KDP, the meeting will be preceded by an IPA and requires an Independent Cost Estimate (ICE) (10 USC 2434). The Build Approval IPAT and ICAT teams will follow the same timelines and guidelines established in AP2 and AP3 for DSABs. (See E1 for a list of products that should be available prior to starting the Build Approval IPAT.)

AP1.2.9 <u>Phase D, Build & Operations Phase</u>
The purpose of Phase D is to conduct system-level fabrication, integration, testing, and deployment activities and provide operations support for a NSS system. Unless otherwise directed, the SPD/PM conducts studies to assess the long-term reliability, maintainability, and availability issues of the system; to resolve hardware or software problems; and to maintain mission performance over the planned life of the system. As the program moves into operations, the SPD/PM is responsible for accomplishing those requirements assigned at the KDP-C DSAB and the Build Approval, as well as any others subsequently assigned by the DoD Space MDA. The SPD/PM is expected to track these requirements closely as they evolve over time. In addition to complying with the direction contained in the Build Approval ADM, see E1 for the tasks that should typically be completed to successfully complete Phase D.

AP2. APPENDIX 2

DEFENSE SPACE ACQUISITION BOARDS (DSABS)
AND THE
INDEPENDENT PROGRAM ASSESSMENT (IPA) PROCESS

AP2.0 Purpose
This appendix describes the DSAB and IPA process.

AP2.1 Defense Space Acquisition Board (DSAB)
The DoD Space MDA convenes a DSAB for each KDP to obtain advice and information necessary to support his decision whether or not to proceed into the next acquisition phase. A DoD Space MDA decision to proceed authorizes the SPD/PM to perform appropriate activities in accordance with the approved Acquisition Strategy and ADM. The DoD Space MDA will determine the scope of the program review and may direct other Space MDAP systems that interact with or are impacted by the program under consideration to participate in the IPA process.

AP2.1.1 DSAB Members
The DoD Space MDA chairs the DSAB and the Vice Chairman of the Joint Chiefs of Staff (VCJCS) is the Vice Chair. The DSAB Executive Secretary (Director, NSSO) facilitates the preparation for and execution of the DSAB meeting. DSAB principals are advisors and representatives of entities who have a material interest in the program under consideration. Their role is to act in an advisory capacity to the DSAB chairman. The DoD Space MDA is the sole decision maker for a DSAB.

AP2.1.2 DSAB Initiation
The written request from the PM/SPD for a DSAB formally initiates the process. This request is sent through the PEO or CAE to the DoD Space MDA. Such requests should typically be made a minimum of five months prior to the desired DSAB date to provide adequate time to conduct the IPA and the independent cost analysis. There should be an MDA-approved Acquisition Strategy prior to DSAB Initiation. It is imperative that the PEO make the DoD Space MDA aware, as early in the process as possible, of his intent to request a DSAB date in order for the DoD Space MDA staff to communicate upcoming ICAT workload requirements to the OSD Cost Analysis Improvement Group (CAIG). Prior to formal initiation of the DSAB process, the DoD Space MDA staff will maintain an early and ongoing dialog with the various NSS SPDs/PMs to facilitate entry of their programs into the formal process. Throughout the process, the DoD Space MDA staff shall provide advice, training, and sample DSAB products.

AP2.1.3 DSAB Request Letter
The PEO shall endorse and forward the SPD/PM written request to the DoD Space MDA to initiate the formal DSAB process. The DSAB request letter shall include: a) program name, b) desired DSAB date, c) KDP being met, d) identification of KDP prerequisite checklist shortfalls (See E1), e) explanation of why this KDP decision is being requested, and f) schedule for completion of key documents necessary to support the IPA evaluation and DSAB decision. The letter shall also include a request and rationale for the DoD Space MDA to grant a waiver and exemption to the processes and procedures contained within DoDI 5000.2 if a waiver has not previously been granted. Submission of the formal DSAB Request Letter starts the IPA process depicted in Figure AP2-1.
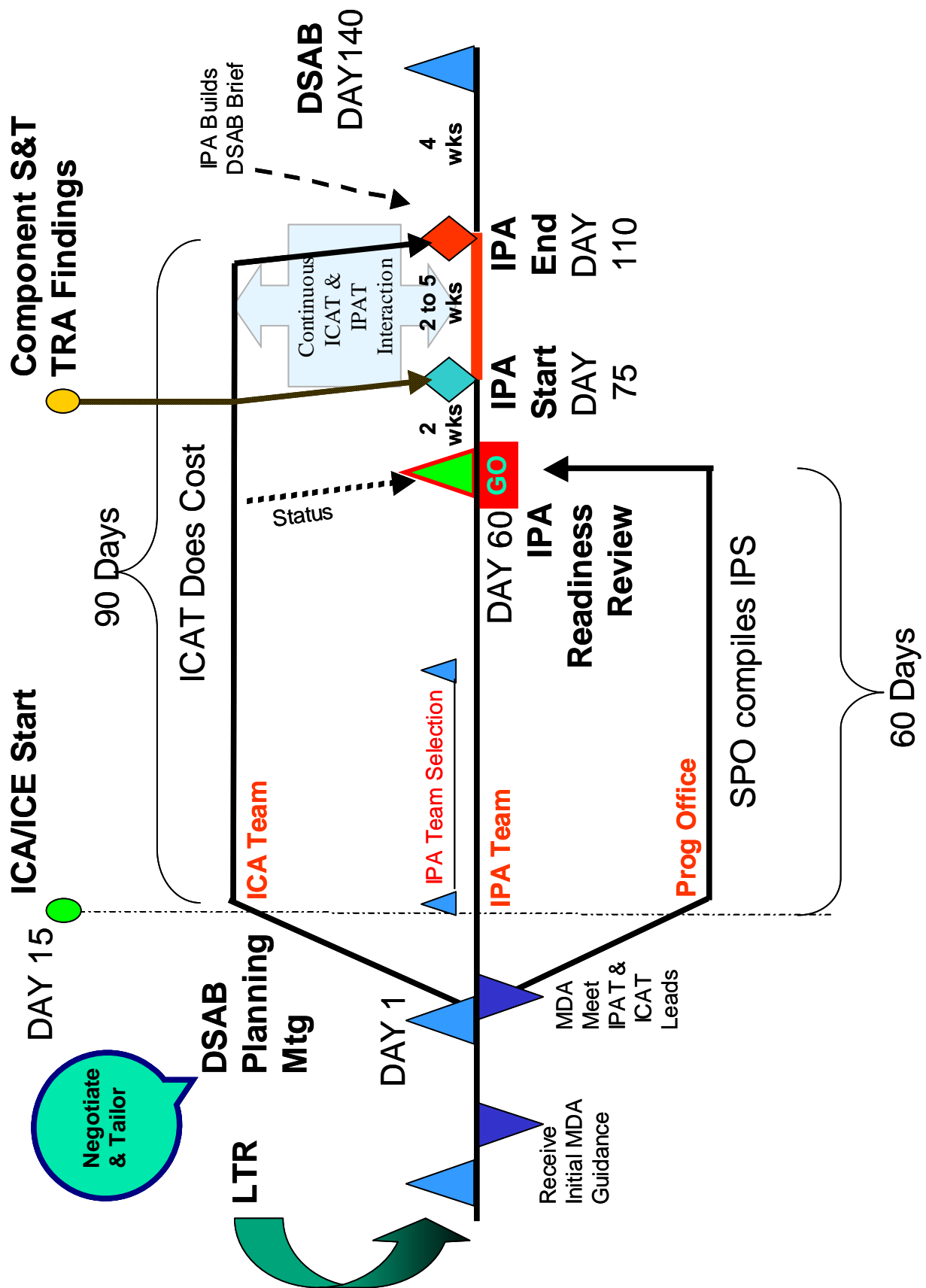
Figure AP2-1: DSAB and IPA Readiness Process
(This is a notional timeline.)

AP2.1.4 <u>DoD Space MDA Initial Activities</u>
Immediately after receipt of the DSAB Request Letter, the DoD Space MDA will inform the DSAB Executive Secretary of the request to initiate the formal DSAB process, providing initial guidance for the preparation and conduct of the IPA and DSAB.

AP2.1.5 <u>DSAB Executive Secretary Initial Activities</u>
Upon notification by the DoD Space MDA of the DSAB request, the DSAB Executive Secretary will begin the process of assisting the DoD Space MDA with the nomination of potential IPAT leaders. The DSAB Executive Secretary will also notify the Chairman of OSD CAIG, Vice Chairman of the Joint Chiefs of Staff, United States Strategic Command (USSTRATCOM), Assistant Secretary of Defense (Network and Information Integration) (ASD(NII)), the Services, and those OSD, Joint Staff, and other entities who have an interest in the program under consideration of the pending DSAB. The National Security Agency (NSA) / Information Assurance Directorate (IAD) will be notified on communication programs. Once notified by the DoD Space MDA who the IPAT and ICAT leaders will be, the DSAB Executive Secretary will establish and announce the date for the DSAB Planning Meeting. The IPAT leader is accountable to the MDA. The IPAT leader will conduct the review and advise the MDA whether the program is ready to move into the next phase.

AP2.1.6 <u>DSAB Planning Meeting</u>
Just prior to the DSAB Planning Meeting, the DSAB Executive Secretary, IPAT Leader, and ICAT leader will meet with the DoD Space MDA to receive guidance for the IPA activity. The DSAB Executive Secretary will document the guidance (issues, concerns, and strategies) provided by the DoD Space MDA to the IPAT and ICAT leaders. The DSAB Planning Meeting will typically be called within 10 calendar days of receipt of a formal DSAB written request from the PEO. The purpose of this meeting is to tailor the review requirements by going through the IPS, IPA, and independent cost analysis items identified in AP2, AP3, E1, and E4. The DSAB Executive Secretary, SPD/PM, IPA and ICAT leads, along with representatives from ASD(NII), DOT&E, J-8 and NSA/IAD will discuss DoD Space MDA issues, concerns, and strategies; review required documents; and discuss recommendations to streamline the process based on each individual program's unique qualities. The DSAB Executive Secretary will notify the MDA of any streamlining recommendations or disconnects (e.g., entering the acquisition process at KDP-B or C, any differences between the acquisition strategy and the nominal schedules in this policy, etc.). Tentative dates for the independent cost analysis start, IPA Readiness Review meeting, actual IPA start, and DSAB will be set at this meeting. The DSAB Executive Secretary will task the meeting attendees to accomplish the actions identified in the appropriate portion of the E1 in time for the IPA Readiness Review meeting. During the meeting the DSAB Executive Secretary will also request nominations for IPAT members. ASD(NII) will notify the OSD staff elements of the request for nominations to ensure all stakeholders are notified.

AP2.1.6.1 <u>IPAT Member Nomination</u>
Entities and organizations that have a vested interest in a DoD Space acquisition program shall identify candidates to serve as either non-voting stakeholders or nominees for the voting "core" IPAT members. Entities and organizations shall provide their nominations to the IPAT leader not later than 7 days after being notified by the DSAB Executive Secretary of the solicitation for IPAT members. IPAT candidates can be Government, Federally Funded Research and Development Centers (FFRDC) staff, University Affiliated Research Center staff, or System Engineering and Technical Assistance (SETA) support contractor personnel that are not directly affiliated with the program under review (e.g., cannot be member of the program office or development contractor team). The DSAB Executive Secretary will provide nomination format and content guidance.

AP2.1.7 <u>Independent Cost Analysis, IPA and SPD/PM Preparation Process</u>
After the DSAB Planning Meeting three activities occur in parallel: the independent cost analysis, the IPA, and SPD/PM preparatory activities.

AP2.1.7.1 <u>ICAT Planning and Review Activities</u>
The independent cost analysis will start immediately after the DSAB Planning Meeting with ICAT member selection by the ICAT leader. Details of the independent cost analysis process are found in AP3. All ICAT administrative costs (e.g., ICAT member travel costs) are the responsibility of the SPD/PM whose program is under review.

AP2.1.7.2 <u>IPA Planning Activities</u>
The IPAT leader begins planning activities immediately after the DSAB Planning Meeting. These activities include program assessment planning (e.g., issue identification, agenda, etc.), IPAT core member selection, and IPAT administrative considerations (e.g., location, communications, security, computer, facilities, travel, etc.). Typically, a facilitator is named by the DSAB Executive Secretary to assist with the IPA preparation and conduct. Coordination of the administrative requirements is the responsibility of the DSAB Executive Secretariat staff. The facilitator will also assist with the identification and satisfaction of the IPAT's administrative and logistics requirements. The SPD/PM is responsible for ensuring that all contractual vehicles and funding are in place and implemented to sustain the IPA core member administrative costs (e.g. travel costs, contractor, salaries, etc.)

AP2.1.7.2.1 <u>IPAT Core Member Selection</u>
The IPAT leader will select individuals to serve as core members of the IPAT based on the program's review needs and candidate qualifications as determined by the IPAT leader. IPAT member nominations are due to the IPAT leader no later than 10 working days after the DSAB Planning Meeting. IPAT selection should be completed no later than two weeks after receipt of the nominations. Typical topics and areas that an IPAT will review are found in Table AP4-1. Normally the IPAT leader will select 10-15 people to make up the core IPA team. (A typical IPAT would be composed of two to three core members to review the program management topics covered by IPS items 1, 2, 7, 12, 16 & 17 in Table AP4-1; five to seven core members to cover the system engineering and test topics covered by IPS items 3, 4, 5, 6, 8, 9, 11, 14 & 15; and four to five core members to address support issues covered by IPS items 10 & 13.)   The IPA lead shall ensure that the core team members are recognized experts in the field they will be reviewing. Core team members are expected to be present full time during the anticipated two-to five-week IPA review period.

AP2.1.7.2.2 <u>Stakeholder IPAT Members</u>
Stakeholder organizations may identify members to represent their organizational interests and to provide IPA evaluation activity progress updates. These members are advisors and should be knowledgeable of the program under review and its associated issues. Stakeholder members should be identified before the start of the IPA process and are expected to serve throughout the entire IPA activity in order to maintain continuity and minimize the need to revisit previously covered material. All program review materials and briefing schedules will be available to these members. The IPAT leader will outline the rules of engagement with respect to the stakeholder participation. The DSAB Secretariat will outline the rules of engagement with respect to conflict of interest to the evaluation. The role of the "stakeholder" IPAT members is to be the single interface between their organization and the IPAT. The stakeholder members are expected to formally identify their organizations' concerns at the start of the IPA process to the IPAT leader so their issues can be properly addressed by the IPAT. The stakeholder members will be provided access to all the IPA review documentation via an appropriately secure website and are responsible for preparing their senior principal for the DSAB. Due to the interdependence of ICAT and IPAT activities, the ICAT is considered a special representative to the IPA and may choose to appoint a special representative to the IPAT. Due to the independent nature of the evaluation, all IPAT activities and meetings will be open to the ICAT except those that involve the actual deliberative evaluation sessions. Similarly, all ICAT meetings and activities will be open to the IPAT except those that involve the physical generation of the estimate.

AP2.1.7.3 <u>Program Office Preparatory Activities</u>
The program office preparatory activities begin immediately after the DSAB Planning Meeting with the generation of the Integrated Program Summary (IPS). Details on the IPS are found in AP4 and E4. The IPS is prepared by the SPD/PM and provides a succinct, integrated picture of the program status for use by the IPAT, the DSAB process, and the DoD Space MDA. The IPS must be completed at the time of the IPA Readiness Review meeting. In addition the program office will support independent cost analysis activities as required.

AP2.1.8 <u>IPA Readiness Review Meeting</u>
The IPA Readiness Review is typically held 50 days after the DSAB Planning Meeting. The purpose of the IPA Readiness Review meeting is to determine if all necessary resources and documentation are in place and/or on a path to support the IPAT. The DSAB Executive Secretary, SPD/PM, ICAT lead, TRA lead (for KDP-B and KDP-C) and IPAT lead, along with representatives from ASD(NII), DOT&E, J-8, NSA/IAD and NSSO will attend. The DSAB Executive Secretary will decide at the IPA Readiness Review if the SPD/PM, IPAT, and ICAT are ready to proceed with the IPA review. The DSAB Executive Secretary will use the appropriate KDP section of the IPA Readiness Review checklist (see E1) as a guide to determine a program's readiness to proceed into the IPA. The J8 representative will be asked to state the user/operator's readiness to proceed with the DSAB process. Typically, the IPA will start two weeks after a successful IPA Readiness Review. At this meeting, there will be no pre-assessment of the quality of the material--only a decision based on whether everything necessary for the review to proceed smoothly is available, or will be available in time for the IPAT to start its review. If the decision is to proceed, the DSAB Executive Secretary will officially set the DSAB date with the DoD Space MDA and formally announce the IPA start and scheduled DSAB date to all interested parties. Only the DoD Space MDA may change the DSAB meeting date once it is formally announced.

AP2.2 <u>Independent Program Assessments (IPAs)</u>
The purpose of the IPA is to advise the DoD Space MDA on a program's readiness to proceed to the next acquisition phase. The focus of the IPA should be on the identification and evaluation of all elements of program risk. In essence, the IPA's function is to determine if the SPD/PM has properly identified and quantified program risk areas and then assess whether adequate risk mitigation plans are in place.

AP2.2.1 <u>Conduct of an IPA</u>
An IPA is a focused, short duration "peer review" activity that typically runs from two to five weeks in duration depending on the program's complexity. The core members of an IPAT are assigned to work the assessment full-time for the IPAT leader, who is responsible for the final recommendation to the MDA. The IPA activity is usually conducted at the program office locale and/or the contractor facility to facilitate easy, ready access to the system experts, the data, and the equipment under review. While the IPAT may discuss issues with various elements in conducting the assessment, the assessment is not a consensus process. Rather, it produces an unbiased, structured, independent evaluation of the proposed space acquisition activity in order to provide the DoD Space MDA an overview of how well the SPD/PM has addressed problematic issues and to identify areas of concern or potential risk. The IPA will also report on vulnerability, mitigation and protection measures addressed by the program. The IPA also compares program accomplishment with program objectives and with previous DoD Space MDA direction, guidance, decisions, and/or Presidential or Congressionally directed actions.

AP2.2.2 <u>IPAT, ICAT and Program Office Interaction</u>
The assessment process shall be a cooperative effort among the program office, the ICAT, and the IPAT. The ICAT must deliver preliminary Independent Cost Assessment (ICA) or Independent Cost Estimate (ICE) results to the IPAT no later than the mid-point of the IPAT's review activities. Constant interaction between the ICAT and IPAT is required once the IPA review begins in order for each team to stay abreast of each other's activities, assumptions, and conclusions. To help ensure this communication, the ICAT leader will make sure the IPAT is informed of all ICAT meetings and activities and the IPAT leader will make sure the ICAT is informed of all IPAT meetings. All ICAT activities and meetings, with the exception of deliberations for voting and generation of the estimate, will be open to IPAT attendance, and all IPAT meetings will be open to ICAT attendance. The IPAT and ICAT shall discuss their major findings with the program office as the assessment is on going and in advance of the DSAB. Frequent, informal meetings and joint question and answer sessions should be held among the IPAT, ICAT, and program office to clarify issues, identify contentious areas, fill information gaps, and eliminate potential misunderstandings early in the IPA and independent cost analysis process. The IPAT and ICAT team should provide briefing outlines to program briefers whenever possible to ensure the information provided by the program office is what the IPAT and/or ICAT needs.

AP2.2.3 <u>IPA Review Scope</u>
The assessment is not necessarily a detailed technical evaluation, and may or may not involve interaction with the SPD/PM's contractors. It is the type of high-level review and analysis that the DoD Space MDA would do personally if time were available. SPDs/PMs will make necessary data available to the IPAT conducting the assessment. The IPAT is not required to gather raw data independently or repeat analyses performed by the SPD/PM, except to the extent judged necessary by the IPAT Leader to answer specific questions or concerns expressed by the DoD Space MDA. The assessment may not involve equal depth in all areas. Instead, the process will include a first-order review of the entire program, followed by more in-depth reviews of those areas of particular criticality, controversy, risk, or as directed by the DoD Space MDA. (See the IPS section of AP4 and E4 for more detail on the scope of the IPA Review.)

AP2.2.3.1 <u>IPA Program Schedule Assessment</u>
An integral part of the IPA evaluation activities will be a schedule assessment as a necessary complement to technical and cost assessment activities. For KDP-B, C and Build Approval, the IPA should conduct a sufficiency review of the program Integrated Master Schedule (IMS). For KDP-C and Build Approval, this includes reviewing the program office critical path analysis. The results of the sufficiency review should be reported at the DSAB.

AP2.2.4 <u>IPA Required Documentation</u>
For all KDPs, an IPS, an IPAT Annotated Briefing, an IPAT Report, and an ICAT cost analysis are prepared. The IPS provides a succinct, integrated picture of the program status for use by the IPAT, the DSAB process, and the DoD Space MDA. The results of the IPAT assessment are documented in an IPA Annotated Brief and IPAT Report prepared by the IPAT, covering the same areas as the IPS. The results of the independent cost analysis are documented in a separate annotated brief prepared by the ICAT. (See AP3 for details on the ICAT and the IPS section of AP4 and E4 for more detail on the IPS and the IPA Annotated Brief.)

AP2.2.5 <u>DSAB Preparatory Package</u>
The DSAB Executive Secretary will make available a DSAB read-ahead package composed of the program office program briefing, the IPS (including the DoD Space MDA approved acquisition strategy), the IPA Annotated Briefing, and the ICAT briefing to all principals that have been invited to attend the subject DSAB. This package will be provided via an appropriately secure website typically 10 working days prior to the DSAB. Due to the potentially large number of DSAB principals, no pre-

briefs by the SPD/PM, IPAT or ICAT members will be conducted unless requested by DSAB principals and approved by the DoD Space MDA. The Stakeholder IPAT members are expected to use the DSAB read-ahead package to prepare their principals to attend the DSAB.

AP2.2.6 <u>Conduct of the DSAB</u>

The DSAB Executive Secretary will orchestrate the DSAB. Typically, the SPD/PM will present a brief summary of the program, the NSSO will present any architectural related issues, and the IPAT leader and the ICAT leader will each present their independent assessment findings and recommendations. The DSAB Executive Secretary will work with the SPD/PM and the IPAT and ICAT leaders to coordinate the briefing sequence and content. At each DSAB, with the benefit of the IPA, the independent cost analysis, and the advice of the DSAB members, the DoD Space MDA should:

a) Review the status of the program relative to validated requirements, confirming whether the mission need is still valid, that the DoD and/or other appropriate components still support the program, protection measures are adequate to address vulnerabilities, and whether the proposed performance thresholds and objectives satisfy the validated requirements and validated CONOPS.
b) Review the status of program execution and the plans for the next phase and the remainder of the program. Explicitly consider the risks associated with the program to include changes in system threats, per the program's tailored threat description as updated, and the adequacy of risk management planning.
c) Review significant cost-schedule-performance trade-offs made by the SPD/PM and either approve those trades or issue appropriate direction.
d) Assess the program life cycle financial implications of what is being proposed.
e) Review the near- and long-term aspects of the acquisition strategy as part of verifying that realistic objectives for cost, schedule, and performance have been established (SPD/PM are to ensure that their strategy for acquisition and specific contracting actions support the KDP process by linking contract events with accomplishments in requirements development, exit criteria, and the program schedule.).
f) Determine if the program should be continued into the next phase, redirected, or terminated.
g) Ensure that the requirements analysis, acquisition management, and programming and budgeting systems are effectively integrated.

h) In addition to the above, for KDP-A DSABs where the decision is to proceed into the concept development phase, where appropriate the DoD Space MDA shall:
    1. Authorize the SPD/PM, through the CAE and PEO, to proceed with contracting actions (e.g., RFP, contract award, exercise contract option, etc.) for the next acquisition phase;
    2. Designate one or more of the CAEs, PEOs, and/or program office to study alternative concepts and present the results at KDP-B;
    3. Determine whether the alternative(s) will be a MDAP or Non-MDAP, consistent with statutory requirements;
    4. Document the MDA directed major strategic KDP-A DSAB decisions and Phase A exit criteria in an Acquisition Decision Memorandum (ADM). (The DSAB Executive Secretariat will document the other DSAB actions and decisions.) The ADM will be signed and distributed within ten working days after the DSAB.

i) In addition to items a-g above, for KDP-B DSABs where the decision is to proceed into the preliminary design phase, where appropriate the DoD Space MDA shall:
    1. Authorize the SPD/PM, through the CAE and PEO, to proceed with contracting actions (e.g., RFP, contract award, exercise contract option, etc.) for the next acquisition phase;
    2. Decide whether each selected option will be a MDAP or Non-MDAP; (If he has not done so at KDP-A)
    3. Document "Program Initiation" and approve the Acquisition Program Baseline (APB);
    4. Determine the LRIP quantities per 10 USC 2400, if required;
    5. Document the MDA directed major strategic KDP-B DSAB decisions and Phase B exit criteria in an Acquisition Decision Memorandum (ADM). (The DSAB Executive Secretariat will document the other DSAB actions and decisions.) The ADM will be signed and distributed within ten working days after the DSAB.

j) In addition to items a-g above, for KDP-C DSABs, where the decision is to proceed into the complete design phase, where appropriate the DoD Space MDA shall:
    1. Authorize the SPD/PM, through the CAE and PEO, to proceed with contracting actions (e.g., RFP contract award, exercise contract option, etc.) for the next acquisition phase;
    2. Assign supporting tasks to other DoD organizations;
    3. Document the MDA-directed major strategic KDP-C DSAB decisions and define any Phase C actions in an Acquisition Decision Memorandum (ADM). (The DSAB Executive Secretariat will document the other DSAB actions and decisions.) The ADM will be signed and distributed within 10 working days after the DSAB;
    4. Validate the SPD/PM's proposed lifecycle management strategy.

k) Review system internal and external segment synchronization planning.

AP2.2.7 <u>Post-DSAB Action Tracking</u>
Program performance and action completion accountability is the responsibility of the SPD/PM. The IPAT is responsible for reviewing the status of actions documented in the ADM from the previous KDP as part of its assessment of program readiness for the next phase. The CAE staff (e.g., program element monitors) is responsible for monitoring compliance with ADM direction throughout the development of the program, and tracking actions after the Build Approval decision.

AP2.2.8 <u>Program Record Keeping and DSAB History File</u>
The DSAB Executive Secretariat shall retain the IPS, ADM, IPAT brief, IPAT report, ICAT results, DSAB meeting summary, and APB, along with essential supporting materials as the official program decision record. The SPD/PM shall comply with record keeping responsibilities under the Federal Records Act for the program information collected and retained in the form of electronic records. (Ref: DoDD 5015.2) Electronic record keeping systems shall preserve the information submitted, as required by 44 USC 3101 et seq.

AP3. APPENDIX 3

DoD SPACE INDEPENDENT COST ANALYSIS PROCESS

AP3.0 <u>Purpose</u>
This section of the DoD Space MDA NSS acquisition policy is issued pursuant to 10 USC 2434, as amended, and other applicable law. This appendix prescribes a uniform policy for implementation of the independent cost analysis activity in support of the DoD Space MDA's goal of acquiring NSS systems using a fast-paced, streamlined management process. An independent cost analysis is an analysis of program cost prepared by an office or other entity not directly responsible for carrying out the development or acquisition of the program. There are two forms of independent cost analyses:

a) <u>Independent Cost Estimate (ICE)</u>: A comprehensive estimate of the cost of a program prepared by an office or other entity that is not directly responsible for carrying out the development or acquisition of the program. An ICE includes all elements of cost that must be considered when deciding whether to proceed with the development, production, and operation of the system; is neither optimistic nor pessimistic; and is based on a careful assessment of program risks. It serves as a realistic budget estimate, reflecting a complete appraisal of the level of cost most likely to be realized over the life cycle of the program. An ICE is required for programs meeting KDP-B & KDP-C and Build Approval reviews.

b) <u>Independent Cost Assessment (ICA)</u>: An analysis of program cost that is not as rigorous or reliable as an Independent Cost Estimate (ICE), but serves as a reasonable cost and budget realism check. Typically an ICA would be required for a program meeting a KDP-A DSAB.

AP3.1 <u>Objectives</u>
The independent cost analysis activity described in this appendix will:
   a) Establish sound, consistent cost estimating and analysis policies for the DoD Space MDA with a long-term objective to develop a cost estimating process and organizational structure that fosters the development of unbiased, consistent, objective cost estimates;
   b) Build and maintain a world-class capability within the government for space and space-related weapon systems cost estimating;
   c) Establish the Office of the Secretary of Defense Cost Analysis Improvement Group (OSD CAIG) as the responsible agent for the independent cost analysis activity for DoD Space MDAPs;
   d) Provide SPDs/PMs with guidance as to when an independent cost analysis is required, how to obtain an independent cost analysis, and what program office activities are required to support the independent cost analysis;
   e) Set standards and guidelines for use of ICAT resources;
   f) Ensure consistency with acquisition reform initiatives;
   g) Define the interaction between the IPA and independent cost analysis processes;
   h) Foster synergy and efficiency of DoD cost estimating resources and research activities by encouraging cooperation and joint use of resources in cost research, cost database development and maintenance, and cost model development and maintenance.

AP3.2 <u>Mission</u>
The OSD CAIG will be responsible for and lead the independent cost analyses of DoD Space MDAPs in support of the DoD Space MDA's DSAB process. These independent cost analyses will not only be accurate and timely, but also be demonstrably cohesive, consistent, tractable, and realistic.

AP3.2.1 Independent Cost Analysis Teams (ICAT)

The OSD CAIG will form ICATs whose primary function is the preparation of independent cost analyses in support of the DoD Space MDA. The OSD CAIG will select the ICAT leaders. To ensure the most efficient use of limited cost analysis expertise within the NSS community, the OSD CAIG will augment its own staff with qualified personnel drawn from across this community to serve as ICAT members. This community includes, among others, the Intelligence Community's Cost Analysis Improvement Group (IC CAIG), the Air Force Cost Analysis Agency (AFCAA), the NRO Cost Group (NCG), the Office of the Deputy Assistant Secretary of the Army for Cost & Economics, the Naval Center for Cost Analysis (NCCA), and the cost estimating organizations of the Air Force Space Command (AFSPC), Air Force Space and Missile Systems Center (SMC), and the Space and Naval Warfare Systems Command (SPAWAR). ICAT leaders must be government personnel. The OSD CAIG shall consider non-OSD CAIG personnel for positions as ICAT leaders, as well as ICAT staff estimating positions. The CAIG has the discretion to require that ICAT lead candidates have experience serving on an ICAT prior to appointing the candidate as a lead. In addition, the CAIG, at its discretion, may choose not to appoint Service members to ICAT lead positions if the CAIG or the Service member's organization feels the Service member's career or objectivity as ICAT lead may be adversely affected by conflict of interest with his/her duties as an ICAT lead. If an analyst from outside OSD CAIG is selected as the ICAT leader, in the role as ICAT leader he/she will act under the authority and direction of the Chairman, OSD CAIG as the independent cost analysis authority for DoD Space MDAPs. While individuals are assigned to an ICAT their ICAT duties have priority over their normal job responsibilities. For this reason, each individual's organization and supervisor must make necessary allowances for him/her to perform required ICAT duties. If it is not possible for the individual to dedicate sufficient time to adequately perform ICAT duties, the individual will not be assigned to participate on an ICAT. For reviews of programs going to a KDP-A DSAB, NSS cost estimating organizations may use FFRDC personnel and/or SETA contractors to fulfill their obligation to provide team member(s) to the ICAT, except in the role as ICAT lead, or to provide cost estimating and/or technical/programmatic analysis expertise in support of their government members serving as ICAT members. At the discretion of the OSD CAIG, this may also apply to reviews of programs going to a KDP-B or KDP-C DSAB or Build Approval review. These FFRDC personnel and/or SETA contractors must be fully qualified and independent as determined by the ICAT leader per paragraph AP3.5

AP3.2.2 ICAT Leader Duties

The ICAT leader will:
a) Assist the OSD CAIG in identifying candidate ICAT members based foremost on the analysts' quality, but also considering availability and agency responsibility for the space system under review;
b) Participate in the DSAB Executive Secretary-led DSAB Planning and IPA Readiness Review meetings;
c) Present ICAT results at the various meetings and reviews as required by the Space MDA;
d) Interact with IPA leader on issues as they are identified.
e) Strive to achieve a collegial environment for ICAT members in which differences of opinion concerning estimating issues are surfaced early, and appropriate attempts are made to reconcile these issues.

AP3.3 Policy

ICAT support is required for the following activities, presented in descending order of priority:
a) Space MDA directed reviews: An Independent Cost Estimate is required for Build Approval.
b) Defense Space Acquisition Board (DSAB) reviews: An independent cost analysis is required for all DSAB reviews conducted in support of KDPs, unless specifically waived by the DoD Space MDA. An Independent Cost Assessment (ICA) is required for all KDP-A reviews and an Independent Cost Estimate (ICE) is required for all KDP-B & C reviews.

c) <u>Senior management requested reviews:</u> Senior managers may request an independent cost analysis in support of any space system acquisition activity.

AP3.4 <u>Data Collection</u>

To assist the OSD CAIG and the Services in developing better program cost estimates, maintaining current cost databases, and streamlining future data collection requirements, NSS will implement the Contractor Cost Data Reporting (CCDR) and Software Resources Data Report (SRDR) systems. CCDRs are required on all DoD Space MDAP acquisition contracts that exceed $50 million (FY 2002 constant dollars) in total value, including priced options. CCDRs may also be required on high risk or high technical interest contracts that are priced between $7 million and $50 million (FY2002 constant dollars) at the request of the ICAT and with the approval of the CAIG Chair. SRDRs are required on all DoD Space MDAP contracts with software efforts of $25 million or more (FY 2002 constant dollars). SRDRs can also be required on critical elements below $25 million when justified by the ICAT and approved by the CAIG Chair. The CAIG Chair and the appropriate Service Cost Chiefs will determine the specific programs that must implement the CCDR and SRDR systems. A program office developed Cost and Software Data Reporting Plan will be developed for each contract that meets the reporting dollar threshold values and will contain the program Work Breakdown Structure (WBS), related dictionary and planned CCDR reporting type and frequency as shown in DoD 5000.4-M-1 and DoD 5000.4-M-2. For KDPs and Build Approval, the plan is required to be delivered to the ICAT leader for evaluation prior to the DSAB Planning meeting in preparation for the ICE/ICA activity. Generally, the NSS program office shall follow the standard product-oriented WBS structure specified in MIL-HDBK-881. Any tailoring of the standardized space system CCDR and SRDR must be approved, in writing, by the responsible Service Cost Chief and the Chairman, OSD CAIG. The OSD CAIG has the lead role for developing and maintaining the standardized space CCDR and SRDR reporting requirements with input and assistance from the NSS cost estimating community and the Defense Cost and Resource Center (DCARC). The Chairman, OSD CAIG must approve the program plan.

A contract Cost and Software Data Reporting Plan will also be developed by the program office for each contract and/or subcontract for hardware or software development or acquisition that meets the reporting thresholds. For KDPs and Build Approval, this plan is also required to be delivered to the ICAT leader for evaluation prior to the DSAB Planning meeting in preparation for the ICE/ICA activity. The contract plan will include all the contract WBS elements, reporting type and frequency. The Chairman, OSD CAIG must also approve the contract plan. WBS element reporting is normally at level 3 of the contract WBS. However, the ICAT with Chairman, OSD CAIG approval can extend reporting below level 3 when justified for cost estimating purposes. The Chairman, OSD CAIG recognizes that the NSS community often requires reporting below level 3 for valid cost estimating needs and will normally approve such reporting when recommended by the ICAT. The ICAT will determine report types and frequency that will be submitted, via the DCARC, for Chairman, OSD CAIG approval on the contract Cost and Software Data Reporting Plans. CCDR and SRDR reporting requirements shall be placed on contract in accordance with the approved contract Cost and Software Data Reporting Plan. The program office is responsible for funding the contractor/subcontractor to provide these required reports. Reports will be prepared electronically in accordance with the instructions contained in DoD 5000.4-M-1 to include the specific CDRL and DID for each CCDR report. The program Cost and Software Data Reporting Plan will be provided, via the DCARC, for Chairman, OSD CAIG and appropriate Service Cost Chief review and approval before the DSAB Planning Meeting**.**

AP3.5 Independence

The ICAT leader will ensure that the ICAT members are objective, unbiased and free from conflicts of interest that may influence the results of their analysis. In addition, independence of ICAT products from potential program office influence and protection of program office and contractor proprietary data is paramount. The ICAT will ensure that budgetary, proprietary, and source selection sensitive information is adequately protected from improper disclosure by ensuring full use of nondisclosure statements when access to that information is required.

AP3.6 Independent Cost Analysis Planning

The DSAB Executive Secretary and the Chairman, OSD CAIG, will periodically review the status of all programs under the purview of the DoD Space MDA to identify those that are scheduled for a DSAB review or may require a DSAB review within the next twelve to eighteen months. For such programs, the Chairman, OSD CAIG will designate a CAIG POC who is responsible for ensuring that the SPD/PM understands, well in advance of the submittal of the DSAB Request Letter, what information, documents, and data must be provided and what other requirements must be met prior to commencement of the ICAT review. The CAIG POC may or may not later serve as the ICAT leader. To accomplish this requirement, the CAIG POC, shortly after being designated, will conduct a Cost Data Gathering and Cost Analysis Planning Meeting.

AP3.6.1 Cost Data Gathering and Cost Analysis Planning Meeting

The CAIG POC will convene a Cost Data Gathering and Cost Analysis Planning Meeting with the DoD Space MDAP SPD/PM at the earliest opportunity for a program meeting a KDP-A and well in advance for a program meeting a KDP-B, KDP-C, or Build Approval to start the necessary dialog and data sharing activities. See Figure AP3-1 for the notional timeline.
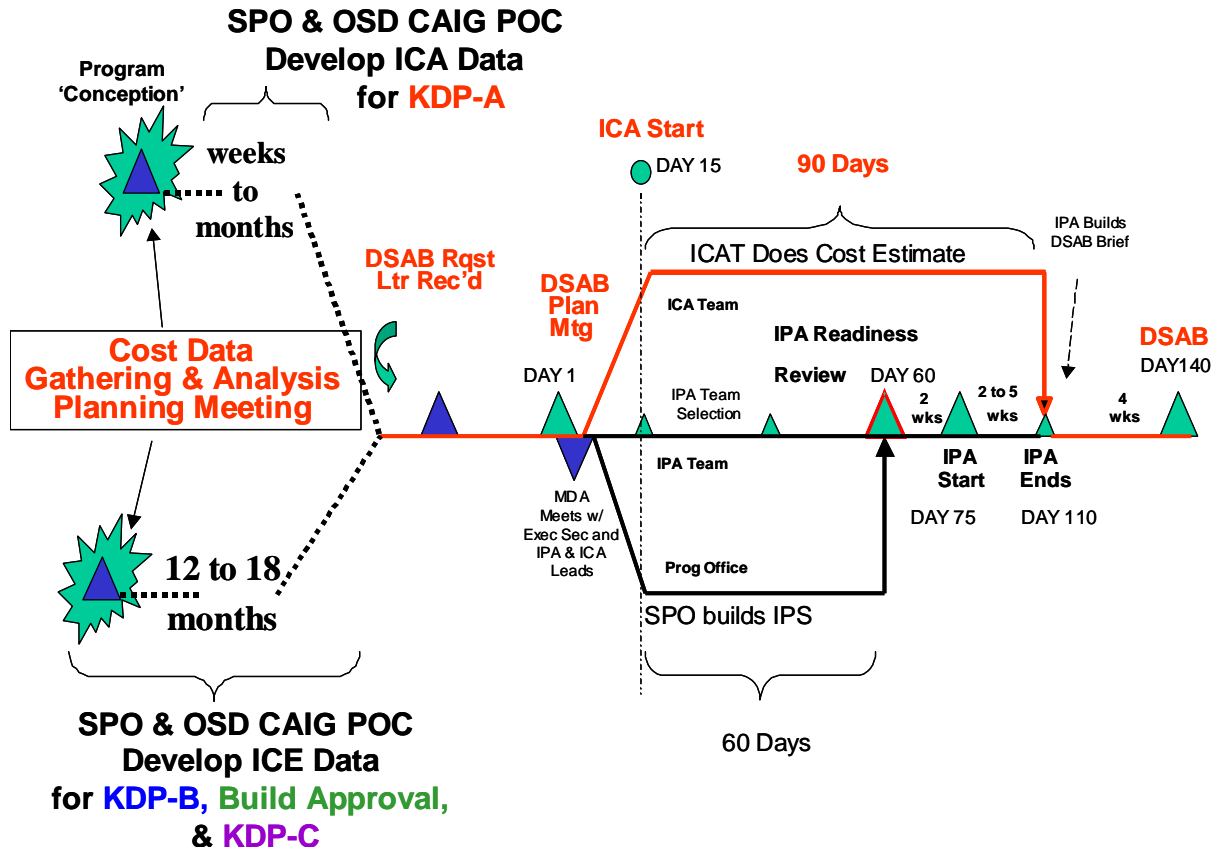

Figure AP3-1: Cost Data Gathering and Cost Analysis Planning Meeting Timeline

At this meeting, the CAIG POC will identify to the SPD/PM the information and/or data required to initiate a DSAB-related cost analysis. Among the items required is a space program tailored Cost Analysis Requirements Description (CARD). General guidance on the preparation of the CARD is found in DoD 5000.4-M, *Cost Analysis Guidance and Procedures,* December 11, 1992 (more specific guidance for a space system CARD will be forthcoming from OSD CAIG). Other information and/or data nominally required include:

a) Approved acquisition strategy.
b) A phase-appropriate description of the technical and programmatic content of the program. The level of detail will be established at this meeting and may include such information as a list of system technical parameters (weight, power, bandwidth, etc.)
c) Description of the impact to systems and interfaces affected outside of program's responsibility (terminals, receivers, ground stations, etc.)
d) Detailed schedule of program activities.
e) Schedule of events needed to achieve requested DSAB or Build Approval date.
f) Funding identified to support ICA/ICE development.
g) Non-CAIG ICE/ICA team members identified and committed.
h) Program office point of contact identified.
i) Draft CCDR, Contractor Work Breakdown Structure (CWBS), and SRDR CDRLs.
j) Program and contract WBS elements and related dictionaries to include descriptions of every WBS element that clearly identify which WBS elements have recurring costs and which have non-recurring costs. Any required mapping of program and contract WBS elements.
k) Current budget baseline broken out by appropriation; when multiple sources fund any portion of a program's total life cycle cost, a complete description of each sources' responsibilities must be provided.
l) Historical cost, schedule, and technical data from completed or ongoing programs that are applicable to the program under review.
m) Information assurance strategy

At the Cost Data Gathering and Cost Analysis Planning Meeting, the CAIG POC and SPD/PM will work to tailor the CAIG-requested information to fit the program's level of maturity and the requirements of the upcoming KDP/Build Approval and acquisition phase. The meeting should also include a discussion of need dates for final products and any interim deliveries that either party may require in order to complete the DSAB review on schedule. The information and/or data identified at this meeting will be presented to the DSAB Executive Secretary and the CAIG POC at the DSAB Planning Meeting. Between the Cost Data Gathering and Cost Analysis Planning Meeting and the DSAB Planning Meeting, the CAIG POC will work with the program office to pre-validate all data requested (i.e., that it is complete, accurate, and timely) and that no extraneous data is requested. Further, the CAIG POC will assist the program office in formatting the data in requested formats, and generating a working schedule detailing the development and delivery of the required data items.

AP3.6.2 Independent Cost Analysis Preparation and the DSAB Planning Meeting
The DSAB Executive Secretary will notify the Chairman, OSD CAIG immediately upon the receipt of the DSAB Request Letter of the DSAB date requested by the PEO and the anticipated date for the DSAB Planning Meeting. Upon notification, the Chairman, OSD CAIG will inform the CAIG's program POC who will ensure that data requirements established at the Cost Data Gathering and Cost Analysis Planning Meeting are ready to be presented at the DSAB Planning Meeting. During the DSAB Planning Meeting, the DSAB Executive Secretary, CAIG POC, and ICAT leader will review the information and/or data provided by the program office in response to direction received at the Cost Data Gathering and Cost Analysis Planning Meeting. If the information and/or data are found to be acceptable, the CAIG POC will immediately activate the ICAT. The DSAB Planning Meeting should also include a discussion of need dates for all final products and any interim deliveries that either the IPAT or ICAT may require to complete the DSAB review on schedule.

AP3.6.3 <u>Space Cost Analysis Review Meeting</u>
A meeting, chaired by the OSD CAIG Chairman, will be held just prior to the completion of the IPA effort in which both the program office and ICA estimates will be briefed and their respective differences discussed. The goal of the meeting is to provide the space cost community an opportunity to comment on the approaches employed by both the estimates. Each of the organizations that support the ICA process will be invited to attend as well as the IPA team leader and the DSAB Executive Secretary.

AP3.6.4 <u>ICAT Activities</u>
The DSAB Executive Secretary shall keep the appropriate Service Cost Chiefs and the Chairman, OSD CAIG informed of any preliminary dates for DSABs that have been identified. The Chairman, OSD CAIG will use these preliminary dates to develop a staffing plan for the ICAT that will conduct the subject program's cost analysis. With the approval of the Chairman, OSD CAIG, the ICAT leader may tailor the ICE/ICA review and briefing process. Such tailoring must be completed in time to be presented at the DSAB Planning Meeting. The ICAT review and briefing process shall not adversely impact the DSAB review and briefing process outlined in Appendix 2. Once activated, the ICAT shall complete its review within ninety calendar days. Throughout the entire DSAB timeline, the ICAT will need technical and programmatic support from the program office and/or its contractor(s) to resolve questions/issues that may arise during development of the independent cost analysis. Fact finding trips to prime contractor(s) and/or major subcontractor facilities will be required to collect data; to tour contractor facilities where the system will be built; to meet with contractor personnel assigned to the program under review for purposes of discussing the program and analyzing technical and cost data from the program under review; to collect and analyze cost and technical data from analogous government programs the contractor supported in the past; and for other various reasons. In addition, there may be instances where fact-finding trips to other locations, such as operating locations or user-command bases, are required. Accordingly, the SPDs/PMs must work with the ICAT to anticipate, plan for, and facilitate these ICAT requirements.

AP3.6.4.1 <u>ICAT Duties</u>
The ICAT shall perform the independent cost analysis and shall:

a. Provide quantitative assessments of the risk in the cost estimates. These assessments may be tailored based upon the requirements and processes of those agencies responsible for the acquisition of the space system. In developing an assessment of cost risk, the ICAT shall consider whether assertions and assumptions stated in the CARD (e.g., schedules, production rates, etc.) are consistent with historical information.

b. Consider uncertainties in inputs to any cost estimating relationships (CERs) used in its estimates, as well as the uncertainties inherent in the calibration of the CERs, and shall consider uncertainties in the factors used in making any estimates by analogy. The ICAT shall consider cost implications of the IPAT's assessments of the program's schedule and technical risks, and may include the results in its cost-risk assessments.

c. Coordinate review activities with the IPAT to ensure significant issues are identified, communicated, and resolved early and as often as appropriate during the review process. The IPAT leader is specifically responsible for providing independent program, schedule and technical risk assessment input to the ICAT. The ICAT leader is responsible for providing cost assessment input to the IPAT.

d. As part of the ICA/ICE process, work with the program office to identify and understand the differences between their respective cost positions.

e. Just prior to the completion of the IPA, conduct a CAIG review to brief the draft ICE/ICA to the IPAT. Other attendees at the briefing may include the Chairman, OSD CAIG, the PEO, the SPD/PM, the responsible Service Cost Chief and/or their representatives, and other organizations as determined by agreement between the IPAT and ICAT leads. The ICAT and

IPAT leads will decide the appropriate time for the ICE or ICA to be given to the IPAT lead for inclusion in the IPA. The ICAT is also responsible for briefing its final results and findings to the DSAB (including relevant pre-briefs).

f. Subsequent to a DSAB decision, provide the program office and the DSAB Executive Secretary with the independent cost analysis briefing, list of key assumptions, all associated costing models, ICAT's documented cost estimate, and other relevant documents developed and briefed at the just-completed DSAB. It is recommended these materials be considered by the program office and future IPATs and ICATs in subsequent costing exercises.

g. Review draft ADM provided as part of the IPS, providing appropriate comments and actions.

AP3.6.4.2 Program Office Duties

SPDs/PMs of programs planning to go before a DSAB shall:

a. Budget for ICAT team leader defined resources needed to support the ICA effort and to comply with the requirements of this appendix.

b. When contacted by the OSD CAIG POC, identify a program office POC with whom the CAIG POC can begin immediate planning, coordination, and data collection.

c. Ensure the timely, complete, and accurate preparation of the data identified at the Cost Data Gathering and Cost Analysis Planning Meeting so the data are ready to be presented at the DSAB Planning Meeting.

d. Ensure their program office staff provides adequate programmatic support to assist in characterizing the system being estimated (generation of an ICA/ICE also requires extensive program office programmatic input to ensure that the system being estimated is described as completely and accurately as possible). The system contractors and program office staff should provide this support. The most effective method of fulfilling this programmatic information requirement is through the completion of a CARD tailored by the NSS cost estimating team for space systems. Tailoring will occur at the Cost Data Gathering meeting. The ICAT must receive a draft CARD from the program office not later than Day 15 after the Cost Data Gathering and Cost Analysis Planning Meeting and the final CARD at the DSAB Planning Meeting, unless the ICAT agrees to other due dates.

e. Ensure their program office staff submits their Program Office Estimate (POE) and risk analysis to the ICAT Leader at the DSAB Planning Meeting. (A POE is an estimate of the cost of a system prepared by employees of the program office. This may include an assessment of cost estimates prepared by the system's prime contractor.) If no risk analysis exists, the program office shall submit a detailed assessment of programmatic cost, schedule, and technical risks for consideration by the ICAT in their risk analysis.

AP3.7 General Cost Analysis Support

Service Cost Chiefs have the responsibility and authority for establishing policy:

a. And providing resources for conducting independent cost assessments for programs not covered by this policy, i.e. Non-MDAP DoD Space programs,

b. And providing resources for conducting all other independent cost assessment activities supporting the acquisition of DoD space systems[4]

c. To ensure quality and consistency of program office estimates for MDAP and Non-MDAP DoD Space programs.

d. And providing resources for cost research, data collection, database and cost model development and maintenance, contract cost data reporting, and independent cost analysis metrics for Non-MDAP DoD Space programs.

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[4] For source selections on MDAPs, an independent cost assessment or single best estimate (SBE) is highly recommended. For budget formulation, long-range planning, and analyses of alternatives, Service Cost Chiefs, at the request of the MDA and in consultation with the Service PEO and the Operational Command, are responsible for producing independent cost estimates and/or supporting the development of the Service PEO and the Operational Command's cost assessments.

KEY DoD SPACE ACQUISITION DOCUMENTATION

AP4.0 **Purpose**
This appendix describes the key acquisition documentation required for DoD space systems. As part of the acquisition streamlining efforts, the intent is to limit the amount of acquisition documentation to the minimum necessary.

AP4.1 **Stand-Alone Documentation**
The IPS shall contain the majority of NSS acquisition documentation necessary for acquisition oversight as detailed in section AP4.2 of this appendix. Section AP4.1, provides details on the additional "stand-alone" acquisition documentation required for acquisition oversight.

AP4.1.1 Acquisition Strategy (Ref: 10 USC 2440 and 2469):
The purpose of an Acquisition Strategy is to describe and document the acquisition approach the program office will use to acquire a NSS system. The Acquisition Strategy is a crucial document in the form of a written paper of approximately 10-20 pages. An Acquisition Strategy needs to be prepared for each phase of the acquisition and then updated as appropriate. For a program approaching a KDP-A, the Acquisition Strategy should focus on the Phase A activities and briefly project the plans for the Phase B, C, and D activities. The Acquisition Strategy should typically be updated for KDP-B, KDP-C and Build Approval focusing on the next phase activities and projecting the plans for the remaining phases. Once the SPD/PM has developed the Acquisition Strategy, the appropriate Service PEO or CAE will typically convene and chair an Acquisition Strategy Panel (ASP) composed of acquisition seniors, determined by the appropriate Service PEO/CAE and the DoD Space MDA, to review the Acquisition Strategy and provide input, feedback, and advice to the SPD/PM. The Acquisition Strategy must also be reviewed by the appropriate General Counsel/Judge Advocate General to determine that the acquisition is consistent with U.S. domestic law and U.S. obligations (e.g., treaties, customary international law, laws of armed conflict, etc.) Once the appropriate PEO endorses the Acquisition Strategy, the SPD/PM and the appropriate PEO will submit the Acquisition Strategy to the DoD Space MDA to obtain guidance and approval. The Acquisition Strategy should be approved by the DoD Space MDA prior to the PEO forwarding the DSAB request letter. Request for Proposals associated with the next acquisition phase should not be released until after the DoD Space MDA has approved the Acquisition Strategy and approved the program entering the next acquisition phase. The Acquisition Strategy should comply with FAR Part 7.105 and should address the following areas:

1. Program Description:
    a. Present a brief description of the program and the capability being provided and/or need being met.
    b. Briefly summarize the technical and contractual history.
    c. Indicate what management system will be used by the government to monitor the contractor's effort (e.g., EVMS).
    d. Identify the program's cost goals (to include cost estimate data if available), delivery/performance period, and required performance characteristics.
    e. Certify the program's compliance with the DoD Strategic Plan and comply with 5 USC 306, 10 USC 118, and Pub. L. 106-65.

2. Program Office Description and Activities:
    a. Describe the program office and the nature and scope of activities to be undertaken by the program office to satisfy the requirements.
    b. Discuss proposed program office vs. contractor(s) responsibilities (e.g., systems integration, system engineering, maintenance and support, launch) and use of commercial practices.

3. Risk Areas and Design Considerations:
    a. Briefly describe known risk areas and/or design considerations affecting the acquisition strategy.
    b. Briefly state all known significant conditions affecting the acquisition such as cost, schedule, and/or performance constraints.
    c. Indicate any government furnished property or government furnished information to be provided to the contractors including material, facilities, manuals, drawings, test data, etc.

	d.	For KDP-B and C, briefly describe (or reference appropriate documents describing) the program's test, logistics, environmental, safety, and security plans.
4.	Acquisition Approach and Program Structure:	
	a.	Explain why or why not Evolutionary Acquisition (EA) is being used for this program. If EA is being used, explain rationale for dividing the research and development into separate spiral or increments.
	b.	Present life cycle program schedule with key dates identified (e.g., acquisition milestones, Initial Operational Capability (IOC), Full Operational Capability (FOC), major reviews, significant test events, deliveries, planned launches, etc.), explicitly linking program decisions to demonstrated accomplishments/exit criteria.
	c.	Provide a detailed monthly schedule of events for the upcoming acquisition phase (e.g., Phase A) and a listing of planned accomplishments for that acquisition phase.
	d.	Provide a preliminary "planning" schedule by quarter for any subsequent acquisition phases (e.g., Phase B, C, and D).
		(Note: Schedules should include preliminary dates for Acquisition Strategy approval, authority to proceed, RFP release, contract award, desired KDPs/DSABs, SRR, SDR, PDR, CDR, key test events, and other key acquisition events as required (e.g., first launch date if a satellite program, tentative LRIP start and Full-Rate Production dates if appropriate).
5.	Business and Contracting Strategy:	
	a.	Discuss competition plans. (Ref 10 USC 2304) Provide details on how the competition approach will foster selection of best value to meet all program requirements including, if applicable, a smooth transition from legacy system to a new system and from an existing source to a new source.
	b.	Discuss market research plans and/or results, small-business issues, and potential sources. Show evidence of the market research conducted that tried to identify commercial and non-material solutions. (Ref: 10 USC 2377 & 2440) For bundled and consolidated procurement efforts, comply with 15 USC 644(e)(2) regarding small business issues and PL 108-136 Sec 801.
	c.	Discuss planned contract type and incentive structure (to include fee structure) for each upcoming acquisition phase.
	d.	Discuss the planned number of contractors within each phase, planned RFP release points, and anticipated contractor down-select points. Discuss source selection issues to include the timing for submission and evaluation of proposals and the relationship of evaluation factors to the attainment of acquisition objectives.
	e.	Discuss, if appropriate, the implications of the U.S. District Court Judgment regarding the Northrop-Grumman Corp. acquisition of TRW, Inc. Consult the DoD Compliance Officer in NSSO.
6.	Identify potential sources.	
	a.	Discuss considerations for the use of commercial hardware and software and/or non-development items.
	b.	Identify any industrial base issues.
	c.	Discuss plans for incorporating new technologies/improvements or securing new sources.

AP4.1.2 Acquisition Decision Memorandum (ADM)

The purpose of the Acquisition Decision Memorandum (ADM) is to document program direction from the DoD Space MDA. The DoD Space MDA will issue a written ADM documenting the decisions of the DSAB and establishing the exit criteria for the next phase. The signed ADM authorizes or prohibits the space program to move into the next acquisition phase. The ADM provides specific direction to the SPD/PM, PEO, and CAE as a result of KDP or Build Approval activities including:

a) Direction concerning the acquisition program baseline (APB);

b) A high-level description of the performance expected as a result of successfully accomplishing the next acquisition phase;

c) The target date for the next KDP or Build Approval and, if necessary, the dates and criteria for any intermediate reviews or special reporting requirements during the next phase;

d) Program-specific accomplishments, called exit criteria, which must be satisfied during the next acquisition phase;

e) Approval to expend funds against the program up to a specified amount over a defined period of time; and

f) Key schedule dates such as launch, Initial Operational Capability (IOC), or Full Operational Capability (FOC).

The program office will draft the initial ADM and provide it as part of the IPS to the IPAT for review and comment. The proposed ADM will be briefed to acquisition execution chain members as part of the DSAB pre-brief cycle and to the DoD Space MDA at the Pre-DSAB. Coordination of the ADM

with entities outside of the acquisition execution chain begins with the distribution of the DSAB Preparation Package and via the interaction among the principals at the DSAB. The DoD Space MDA will address the ADM to the appropriate PEO. The DoD Space MDA will sign the ADM within ten working days after the completion of DSAB. The DSAB Executive Secretary will distribute copies to the DSAB attendees. If additional program direction from the DoD Space MDA is required between DSABs, the DoD Space MDA will issue an "ADM Update" to the appropriate PEO. Coordination requirements for conducting an "ADM Update" not part of a DSAB are found in E2.

AP4.1.3 <u>Acquisition Program Baseline (APB)</u> (Ref: 10 USC 2435)
The purpose of the APB is to document the program's approved baseline by reporting top-level program drivers and risk areas associated with schedule, performance, and cost thresholds and objectives. The program office should have a clear, unambiguous set of priorities among cost, schedule, performance, and supportability. These priorities should drive the acquisition strategy, source selection decisions, test strategy, sustainment approaches, as well as day-to-day decisions. The KDP-A ADM serves as the APB for Phase A. Each DoD Space MDAP in Phase B, C, or D must be managed according to a standalone, detailed APB established between the DoD Space MDA and the SPD/PM, through the appropriate CAE/PEO. The APB must be kept up to date to reflect program changes discovered during the course of development activities and due to directed budgetary decisions (e.g., Program Decision Memorandums and Program Budget Decisions). Specific written approval by the DoD Space MDA for DoD Space MDAPs is required prior to committing to a change in the capability of a system or a material change to the interface with DoD or other user elements. (For DoD space Non-MDAPs the Service designated MDA fulfills this role.) The initial APB for Phase B, C, and D will be drafted by the program office and provided as part of the IPS to the IPAT for review and comment for KDP-B and KDP-C and Build Approval. The proposed APB will be provided to the acquisition execution chain members as part of the DSAB pre-brief cycle and to the DoD Space MDA at the Pre-DSAB. Coordination of APB with entities outside of the acquisition execution chain takes place as part of the DSAB Preparation Package review and via the interaction among the principals at the DSAB. If there is a need to accomplish an "APB Update" between DSABs, due to a program deviation, the proposed updated APB should clearly show the "old" information that was previously approved, and the proposed updated APB information. Coordination requirements for conducting an "APB update" that are not part of a DSAB are found in E2. All Key Performance Parameters, when validated by the JROC, shall be inserted verbatim into the performance section of the APB.

AP4.1.3.1 <u>Program Deviation</u>
A program deviation occurs when the SPD/PM has reason to believe that the current estimate for the program indicates that a performance, schedule, or cost threshold value will not be achieved. The SPD/PM will immediately notify the DoD Space MDA when a deviation occurs. Within 30 days of the occurrence, the SPD/PM shall notify the DoD Space MDA of the reason for the program deviation and the actions that need to be taken to bring the program back within baseline parameters. Within 90 days of the occurrence of the program deviation, the program shall be back within APB parameters, or a new APB (changing only those parameters that breached) shall have been coordinated in accordance with E3 and presented to the DoD Space MDA for approval. Consult 10 USC 2432 & 2433 and the Defense Acquisition Guidebook for breach thresholds and procedures requiring congressional notification.

AP4.2 Integrated Program Summary (IPS)

AP4.2.1 IPS Generation
The purpose of the IPS is to provide a concise record that documents a NSS program's accomplishments, status, and plans at each KDP and Build Approval. The IPS is not a document that goes through coordination. The program office generates the IPS by incorporating a minimal set of pre-approved material (e.g., capability documents, acquisition strategy, test and evaluation master plan (TEMP)) and newly generated material that covers the IPS subject matter. Once completed, the SPD/PM provides the IPS and referenced material to the IPAT Leader prior to IPA start. The IPAT then uses the IPS as the starting point for the IPA review. Coordination and approval of the IPS material occurs as a result of a successful IPAT review. The program office is encouraged to begin preparation of the IPS well before the formal start of the IPA readiness process.

AP4.2.2 IPS Document and IPA Annotated Briefing Content
Table AP4-1 outlines the content of the IPS document and the IPA Annotated Briefing. The length of the IPS document and IPA Annotated Briefing will depend on the maturity of the program and the complexity of the issues involved. The IPS will be tailored appropriately for the level of detail required at each KDP and Build Approval. A DSAB planning meeting will be conducted in advance of the start of the IPA process where the level of detail will be determined between the SPD/PM and the DSAB Executive Secretary. While this NSS policy does not provide explicit direction for the format of an IPS and IPA Annotated Briefing, certain core issues must be addressed at each DSAB to provide a foundation upon which the DoD Space MDA can make sound acquisition decisions and provide program direction. The following is a brief description of the type of information to be addressed within each IPS parameter. The descriptions are not all-inclusive but rather are provided as a guide to assist in the development of the IPS. As the program matures, the information in the IPS shall evolve and become more definitive.

ITEM	DESCRIPTION
1	Acquisition Strategy
2	Execution Status of Program
3	ADM Exit Criteria and Direction at Previous KDP
4	Requirements Summary
5	Systems Engineering Process Review and System Engineering Plan
6	Alternatives Assessed and Results
7	Most Promising Alternatives & Rationale
8	Cost Drivers and Major Trade-offs
9	Risk Assessment and Risk Reduction Plans
10	Support Issues (e.g., Manpower, Training, Logistics, Impact on Other Organizations, etc.)
11	Integrated Architectures and Information Support Plan
12	Clinger Cohen Act Compliance
13	Mission Protection, Program Protection Planning, Information Assurance, and Cryptological Systems
14	Developmental and/or Operational Testing Approach and TEMP
15	Program Environmental, Safety, and Occupational Health Evaluation
16	Program Office Estimate and Future Years Defense Planning Implications
17	Integrated Master Schedule (for KDP B, C, Build Approval)
18	Recommendations (ADM, Exit Criteria, etc.)

**Table AP4-1: Integrated Program Summary (IPS) and
Independent Program Assessment Brief Content Outline**

E1. ENCLOSURE 1: IPA READINESS REVIEW CHECKLIST AND KDP ENTRY CRITERIA

Pre-KDP-A Activities

a) JCIDS process development of the Initial Capabilities Document (ICD) and initial CDD.
b)   Development of Operational View (OV) of Integrated Architecture.
c) Conduct of the Concept Decision Meeting by the DoD Space MDA with J8 and Director, PA&E.
d) Conduct of the Analysis of Alternatives (AoA) by the assigned organization.
e) Development of the Systems-Level Concept of Operations (CONOPS) by the concept sponsor.
f) Conduct initial analysis of the Information Assurance implications of the proposed CONOPS with the assistance of the National Security Agency.
g) Development of the Acquisition Strategy by the assigned acquisition office and approval by DoD Space MDA.
h) Creation of the IPS by the assigned acquisition office.
i) Conduct initial test and evaluation planning and T&E activities. Deliver the Test and Evaluation (T&E) Strategy to the Director, OT&E in time for approval prior to KDP-A.

IPA READINESS REVIEW CHECKLIST FOR KDP-A	
a)	ICD (validated) and initial CDD from Capability Needs Authority (J8)
b)	AoA report from assigned organization (e.g. Lead Ops Command)
c)	Initial system level CONOPS from concept sponsor (e.g. Lead Ops Command)
d)	OV Architecture Products from concept sponsor (e.g. Lead Ops Command, NSSO, others)
e)	DoD Space MDA approved Acquisition Strategy from acquisition office
f)	Integrated Program Summary (IPS) from acquisition office
g)	Clinger Cohen Act Compliance table in IPS by acquisition office
h)	"New Start" certification from acquisition office in IPS
i)	Draft ADM from acquisition office in IPS
j)	Status report on ICA from ICAT Leader
k)	Team Composition and IPA Plan and Agenda from the IPAT Leader
l)	Director, OT&E Approved Test & Evaluation Strategy from program office

Phase A Program Office Activities

a) Document and satisfy the intent of 10 USC 2350a, 2364, & 2377 regarding cooperative opportunities with allies, the use of Defense Research activities and the conduct of market research for applicable commercial items and/or 15 USC 644(e)(2) bundled procurement contracts affecting small business.
b) Certify the program's compliance with the DoD Strategic Plan in the acquisition strategy and comply with 5 USC 306, 10 USC 118, and Pub. L. 106-65.
c) Review Joint Requirements Oversight Council (JROC) approved National Security Space Office (NSSO) architectures to determine relevant architectures that apply to the program or system.
d) Develop technologies and conduct a Technology Maturity Assessment.
e) Produce the initial PESHE document detailing the Program Office's strategy and responsibilities for integrating ESOH into the Systems Engineering process, the risk matrices and data elements required for ESOH risk management, and initial NEPA completion schedule.
f) Develop a comprehensive plan for Human Systems Integration (HSI), reference DoDI 5000.2
g) Conduct system architecture development efforts and produce the initial System View (SV) architecture products initial Technical View architecture products, and updated Operational View products, for the CDD and to support the System CONOPS as required per CJCSI 6212.01C, DoDD 4630.5, and DoDI 4630.8.
h) Conduct test and evaluation planning and T&E activities. Deliver the Test and Evaluation Master Plan to the Director, OT&E in time to be approved prior to KDP-B (Ref: Defense Acquisition Guidebook for the specific reference for content.) Determine the LRIP quantity and present to DoD Space MDA and Director, OT&E for decision prior to KDP-B. (Ref 10 USC 2399 and 2400)
i) Produce updated PESHE in compliance with NEPA, 42 USC 4321, et seq., implementing Executive Orders, and other directives.
j) Conduct requirement development activities (e.g., requirements derivation, flow down, definition, etc.) to include successful completion of a System Requirements Review (SRR) and System Design Review (SDR).
k) Produce the System Specification (i.e., "A" Spec).
l) Initiate Integrated Logistics Support (ILS) planning.
m) Conduct a legal review prior to KDP-B of the acquisition strategy by the appropriate General Counsel/Judge Advocate General, to determine that the acquisition is consistent with federal law and obligations (e.g., treaties, customary international law, laws of armed conflict, etc.).
n) Conduct initial system internal and external segment synchronization planning.
o) Produce the Acquisition Program Baseline (APB) for use in Phase B and comply with 10 USC 2435.

p) Conduct initial Information Assurance Strategy planning for NSS systems that meet the definition of a "mission critical information system" or a "mission essential information system" and register those systems with the DoD Chief Information Officer (CIO) through the Component CIO and comply with Pub. L. 106-398, Section 811.

q) Update Clinger–Cohen Act (CCA) table and obtain Component CIO's confirmation that program complies with CCA and complies with 40 USC 1401 and Pub. L. 107-248 sec 8088.

r) Develop a tailored space system Cost Analysis Requirements Description (CARD) and a fully documented life-cycle cost estimate consistent with the CARD.

s) Produce initial risk management plan and conduct risk reduction.

t) Request production of the System Threat Assessment Report (STAR) through appropriate intelligence office.

u) Identify preliminary Space Situational Awareness (SSA) support required for program including system requirements for intelligence, surveillance, reconnaissance, space environment, and C4 support.

v) Conduct initial information assurance strategy planning and begin the Systems Security Authorizations Agreement accreditation activities per DoDI 5200.4 for NSS systems that meet the definition of a "mission critical information system" or a "mission essential information system" as defined in DoDD 8500.1.

w) Develop and coordinate ISP. ASD(NII) will distribute the initial ISP generated by program office as part of the IPS for KDP-B in accordance with procedures described in the Defense Acquisition Guidebook for DoD-wide review. Comments will be due back prior to KDP-C.

x) Develop IMS for the concept(s) going forward into Phase B.

y) Conduct initial assessment of mission protection measures to address system vulnerability and target protection levels.

IPA READINESS REVIEW CHECKLIST FOR KDP-B	
a)	Updated OV Architecture Products from concept sponsor (e.g., Ops Command, NSSO, others)
b)	Initial Integrated Architecture for the system from program office
c)	Updated system level CONOPS from concept sponsor (e.g. Lead Ops Command)
d)	DoD Space MDA approved Acquisition Strategy from program office
e)	Updated CDD from Capability Needs Authority (J8)
f)	Director, OT&E Approved Test & Evaluation Master Plan from program office
g)	Integrated Program Summary (IPS) from program office
h)	Clinger Cohen Act Compliance table in IPS by program office
i)	"New Start" certification from program office in IPS
j)	Draft ADM from program office
k)	Draft APB from program office
l)	Status report on ICE from ICAT Leader
m)	Team Composition and IPA Plan and Agenda from the IPAT Leader

Phase B Program Office Activities

a) Conduct risk reduction, complete technology development and conduct a Technology Maturity Assessment, continue test and evaluation activities, and update risk management plan.

b) Review JROC approved NSSO architectures to determine relevant architectures that apply to the program or system.

c) Conduct appropriate technical design reviews (e.g., PDR).

d) Produce the Development Specification(s) (i.e., "B" Spec). Produce the Software Requirements Specifications (SRSs), Interface Requirements Specifications (IRSs), software architectural design, and software detailed design determined by the particular software life cycle model used as appropriate.

e) Program office should then update the OV, SV and TV products per CJCSI 6212.01C. Develop and coordinate ISP. ASD(NII) will distribute the initial ISP generated by program office as part of the IPS for KDP-C in accordance with procedures described in the DoDI 4630.8 and E4.11. ASD(NII) will distribute updated ISP section for a truncated review in parallel with IPAT review with comments due back by IPA end.

f) Update the initial PESHE with ESOH risk management data (e.g., identified hazards, risk assessments, mitigation decisions, residual risk acceptance, ongoing assessments of the effectiveness of mitigation measures and comply with 42 USC 4321, documenting in the PESHE the status of planned and completed NEPA documentation.

g) Conduct System Disposal initial planning.

h) Update the TEMP and comply with 10 USC 2399 (& 2366 if required). For MDAPs, the SPD/PM, PEO, CAE, Service Operational Test Agency (OTA), DoD Space MDA, ASD(NII) and Director, OT&E must sign the TEMP.

i) Produce the APB for use in Phase C and comply with 10 USC 2435.

j) Produce the required periodic reporting products (e.g., SARs, UCRs, etc.) and comply with 10 USC 2432 and 2433.

k) Certify the program's compliance with the DoD Strategic Plan in the updated Acquisition Strategy and comply with 5 USC 306, 10 USC 118, and Pub. L. 106-65.

l) Submit the Stage 2 Experimental Application for Frequency Allocation prior to KDP-C, if required, and comply with 47 USC 305, Pub. L. 102-538 sec 104, and 47 USC sec 901-904. Also consult OMB Circular A-11, Part 2 and DoDD 4650.1 for guidance.

m) Continue Integrated Logistics Support planning, sustainment planning and pre-planned product improvement planning, as appropriate, and conduct the depot maintenance (e.g., Source of Repair Analysis process) analysis prior to KDP-C in compliance with 10 USC 2460/2464/2466/2469.

n) Conduct a legal review prior to KDP-C of the Acquisition Strategy by the appropriate General Counsel/Judge Advocate General to determine that the acquisition is consistent with U.S. domestic law and U.S. obligations (e.g., treaties, customary international law, laws of armed conflict, etc.).

o) Conduct system internal and external segment synchronization planning.

p) Update mission protection, program protection and security planning.

q) Update the tailored space system Cost Analysis Requirements Description (CARD) and a fully documented life cycle cost estimate consistent with the CARD.

r) Update the information assurance (IA) strategy; develop detailed IA requirements in accordance with the latest release of DoD 8500 series directives and instructions; develop a detailed IA program management and implementation plan, and continue development of the System Security Authorization Agreement per DoDI 5200.4.

s) Update Clinger Cohen Act (CCA) table and obtain Component CIO's confirmation that program complies with CCA and comply with 40 USC 1401 & Pub. L. 107-248 sec 8088.

t) Perform a functional availability analysis once the system has undergone Preliminary Design Review or in support of KDP-C. Continue on an annual basis. (Ref: Interim Guide for Satellite Functional Availability Planning)

IPA READINESS REVIEW CHECKLIST FOR KDP-C
a) Updated OV Architecture Products from concept sponsor (e.g., Lead Ops Command, NSSO, others)
b) Updated Integrated Architecture for the system from program office
c) Updated system level CONOPS from concept sponsor (e.g. Lead Ops Command)
d) DoD Space MDA approved Acquisition Strategy from program office
e) Updated CDD
f) Director, OT&E Approved TEMP from SPO
g) Integrated Program Summary (IPS) from program office
h) Clinger Cohen Act Compliance table in IPS by program office
i) "New Start" certification from program office in IPS
j) Draft ADM from program office
k) Draft Updated APB from program office
l) Status report on ICE from ICAT Leader
m) Team Composition and IPA Plan and Agenda from the IPAT Leader
n) Information Support Plan

Phase C Program Office Activities

a) Conduct risk reduction, continue test and evaluation activities, and update Risk Management Plan.

b) Reassess JROC approved NSSO architectures to determine relevant architectures that apply to the program or system.

c) Conduct appropriate technical design reviews (e.g., CDR).

d) Produce the appropriate Specification(s) (i.e., Production or "C" Spec); finalize the Software Requirements Specifications (SRSs), Interface Requirements Specifications (IRSs), software architectural design, and software detailed design determined by the particular software life cycle model used as appropriate.

e) Update ISP with comments received as part of KDP-C per DoDD 4630.5, DoDI 4630.8, and E4.11. Program office should then update the OV, SV and TV products required per CJCSI 6212.01C. (See the Defense Acquisition Guidebook for the specific reference for content guidance.)

f) Update the PESHE with ESOH risk management data (e.g., identified hazards, risk assessments, mitigation decisions, residual risk acceptance, ongoing assessments of the effectiveness of mitigation measures and comply with 42 USC 4321, documenting in the PESHE the status of planned and completed NEPA documentation.

g) Continue System Disposal planning.

h) Update the TEMP and comply with 10 USC 2399 (& 2366 if required). For MDAPs, the SPD/PM, PEO, CAE, Service Operational Test Agency (OTA), DoD Space MDA, ASD(NII) and Director, OT&E must sign the TEMP.

i) Produce the APB for use in Phase D and comply with 10 USC 2435.

j) Produce the required periodic reporting products (e.g., SARs, UCRs, etc.) and comply with 10 USC 2432 and 2433.

k) Certify the program's compliance with the DoD Strategic Plan in the updated acquisition strategy and comply with 5 USC 306, 10 USC 118, and Pub. L. 106-65.

l) Submit the Stage 2 Experimental Application for Frequency Allocation prior to Build Approval, if required, and comply with 47 USC 305, Pub. L. 102-538 sec 104, and 47 USC sec 901-904. Also consult OMB Circular A-11, Part 2 and DoDD 4650.1 for guidance.

m) Develop, document, and validate logistics management information to complete the critical design review; support the Build Approval; and establish contractor support as appropriate and conduct depot maintenance. (e.g., Source of Repair Analysis process) analysis prior to Build Approval in compliance with 10 USC 2460/2464/2466/2469.

n) Conduct a legal review prior to Build Approval of the Acquisition Strategy by the appropriate General Counsel/Judge Advocate General to determine that the acquisition is consistent with U.S. domestic law and U.S. obligations (e.g., treaties, customary international law, laws of armed conflict, etc.).
o) Conduct system internal and external segment synchronization planning.
p) Update mission protection, program protection and security planning.
q) Update the tailored space system Cost Analysis Requirements Description (CARD) and a fully documented life cycle cost estimate consistent with the CARD.
r) Support IA certification testing, complete the System Security Authorization Agreement, and request "approval to operate" the system when ready for fielding from the Designated Approving Authority (DAA) per DoDI 5200.4.
s) Update Clinger Cohen Act (CCA) table and obtain Component CIO's confirmation that program complies with CCA and comply with 40 USC 1401 & Pub. L. 107-248 sec 8088
t) Conduct the "system demonstration" sub-phase if required.

IPA READINESS REVIEW CHECKLIST FOR Build Approval (LRIP or Full-Rate Production Decision Meeting if using the Production Focused Model)
a) Updated OV Architecture Products from concept sponsor (e.g., Lead Ops Command, NSSO, others)
b) Updated Integrated Architecture for the system from program office
c) DoD Space MDA approved Acquisition Strategy from program office
d) CPD from Capability Needs Authority (J8)
e) Director, OT&E Approved TEMP from SPO (Updated TEMP for LRIP Decision and Full-Rate Production decision)
f) Integrated Program Summary (IPS) from program office
g) Clinger Cohen Act Compliance table in IPS by program office
h) "New Start" certification from program office in IPS
i) Draft ADM from program office
j) Draft Updated APB from program office
k) Status report on ICE from ICAT Leader
l) Team Composition and IPA Plan and Agenda from the IPAT Leader
m) Updated Information Support Plan

Phase D Program Office Activities
a) Build, test, and deploy the space related program, product, or service and comply with 10 USC 2399 & 2366 (if required).
b) Refine/complete Integrated Logistics Support/sustainment planning to ensure supportability of fielded system.
c) Produce the required periodic reporting products (e.g., SARs, UCRs, etc.) and comply with 10 USC 2432 and 2433.
d) Conduct the "Follow-on Buy" decision, if required.
e) Produce the LRIP items, if required.
f) Provide information to DOT&E for the "Beyond-LRIP" Report if required, and comply with 10 USC 2399
g) Make the Full-Rate Production decision if required.
h) Conduct the post deployment performance review and comply with 5 USC 306, 40 USC 1401, and Pub. L. 107-217, sec 11313 if required.
i) Implement system internal and external segment synchronization plan.
j) Continue to update the ESOH risk database, the NEPA documentation, and completion status.
k) Complete system disposal planning. Phase D ends with system disposal.

E2. ENCLOSURE 2: DoD SPACE ACQUISITION DOCUMENTATION APPROVAL/ COORDINATION REQUIREMENTS MATRIX*

Document Title	Written By	Approval Required Per Statute	Approval Required Per SAF/US	Coord Required Per Statute	Coord Required (Per SAF/US)
ADM including when not produced as part of a DSAB	SPO and DoD Space MDA Staff	N/A	MDA	N/A	SPD/PM; PEO; CAE;ASD(NII); USD(I); PA&E; Lead User/ Operating Command; Affected Agencies and Departments
APB including when not produced as part of a DSAB	SPO	N/A	MDA	OSD(C) (10 USC 2220)	J8; SPD/PM; PEO; USD(I); PA&E; CAE; Lead User/ Operating Command; ASD(NII); Affected Agencies and Departments
T&E Strategy	SPO	N/A	Dir OT&E for MDAPs; ASD(NII); Service OTA for "major" systems; SPD/PM; CAE; PEO	N/A	Service Test Authority
TEMP	SPO	Dir OT&E for MDAPs; Service OTA for "major" systems (10 USC 2399)	MDA; ASD(NII); CAE; PEO; Service Test Authority; SPD/PM;	N/A	Affected Services and/or Agencies
Acquisition Strategy	SPO	N/A	MDA; PEO; SPD/PM	N/A	CAE; Service Contracting Authority; ASD(NII);Lead User/Operating Command
IPS	SPO	N/A	SPD/PM prior to IPA	N/A	NONE
ISP	SPO	N/A	CAE	N/A	ASD(NII)

*Ten working days is considered a reasonable time period to allow for coordination of key DoD Space Acquisition documentation. If no response is received from addressees after 10 working days, coordination packages may be forwarded to the DoD Space MDA for review and signature.

E3. ENCLOSURE 3: DoD SPACE STATUTORY REFERENCE INFORMATION

INFORMATION REQUIRED	APPLICABLE STATUTE	03-01 REF	EVENT
Consideration of Technology Issues	10 U.S.C. § 2364	E1, E4.2	KDP-B
Market Research	10 U.S.C. §2377 15 U.S.C. §644(e)(2)	AP4.1.1, E1	KDP-B
Clinger-Cohen Act (CCA) Compliance	40 U.S.C. §1401 Pub. L. 107-248, Section 8088, Pub. L. 105-261, Subtitle D, Section 331	3.2, E1, E4.12	KDP-A, B, C
Post-Deployment Performance Review	5 U.S.C. §306, 40 U.S.C. §1401, Pub. L. 107-217, Section 11313	E1	Phase D
Registration of mission-critical and mission-essential information systems	Pub. L. 107-248, Section 8088 Pub. L. 106-398, Section 811	E1, E4.2	KDP-B
Beyond-LRIP Report (OSD T&E Oversight programs only)	10 U.S.C. §2399	E1	Phase D
Programmatic Environment Safety and Occupational Health Evaluation (PESHE) (including National Environmental Policy Act Schedule)	42 U.S.C. §4321	AP1.1.8, E1	KDP-A, B, C
Spectrum Certification Compliance (DD Form 1494) (applicable to all systems/equipment that require utilization of electromagnetic spectrum)	47 U.S.C. §305 Pub. L. 102-538, Section 104 47 U.S.C. §901-904	AP4.2, E1, E4.2	Phase B, C
Selected Acquisition Report (SAR)—DD-AT&L(Q&A)823 (MDAPs only) Unit Cost Report (UCR)—DD-AT&L(Q&R)1591 (MDAPs only)	10 U.S.C. §2432 10 U.S.C. §2433	AP4.1.3.1, 5.3.5, E1	Phase B, C, D
Live Fire Waiver & alternate LFT&E Plan (Covered Systems only)	10 U.S.C. §2366	AP1.1.6, E4.14 (if required)	Phase B
Industrial Capabilities (part of acquisition strategy)	10 U.S.C. §2440	AP4.1.1, E4.1	KDP-A, B, C
LRIP Quantities	10 U.S.C. §2400	AP2.2.6	KDP-B
Independent Cost Estimate and Manpower Estimate (MDAPs Only)	10 U.S.C. §2434	AP3, AP1.2.8, E4.16	KDP-B, Build Approval
LFT&E Report (OSD-covered programs only)	10 U.S.C. § 2366	AP1.1.6, E1, E4.14	Phase D
Core Logistics Analysis/Source of Repair Analysis (part of acquisition strategy)	10 U.S.C. §2464 10 U.S.C. §2460 10 U.S.C. §2466	E1	KDP-C
Competition Analysis (Depot-level Maintenance $3M rule) (part of acquisition strategy)	10 U.S.C. §2469	E1	KDP-C, Build Approval
Integrated Program Summary	Pub. L. 107-314 Section 803	AP4.2, E4	KDP-A, B, C, Build Approval
Acquisition Program Baseline (APB)	10 U.S.C. §2435	AP4.1.3, E1	KDP-B, C, Build Approval
Program Deviation Report	10 U.S.C. § 2432, 10 U.S.C. § 2433, 10 U.S.C. § 2435	5.3.5, AP4.1.3.1	As required
Operational Test Plan (includes Early Operational Assessments and Operational Assessments) T&E Oversight Programs only	10 U.S.C. §2399	AP1.1.6, AP4.2.2, E1,	KDP-B, C, Build Approval
Cooperative Opportunities	10 U.S.C. §2350a	AP4.1.1, E1, E4.2,	KDP-A, B, C
Acquisition of Services	Pub. L. 107-107, Section 801(d)	N/A	As required
APB Coord	10 U.S.C. § 2220(a)(2)	AP4.1.3, E1	KDP-B, C, Build Approval
Compliance with Strategic Plan (as part of the analysis of alternatives, whenever practical)	5 U.S.C. §306 10 U.S.C. §118 Pub. L. 106-65	AP4.1.1, E1	KDP-A, B, C, Build Approval
MDAP & Non-MDAP	10 U.S.C. § 2430	3.1.1	
Major System	10 U.S.C. § 2302d	3.1.2	
Value Engineering	41 U.S.C. § 432	E4.5	KDP-A, B, C

E4. ENCLOSURE 4: INTEGRATED PROGRAM SUMMARY (IPS)

IPS Contents
E4.1 <u>Space System Acquisition Strategy (Acquisition Strategy)</u> (Ref: 10 USC 2440 and 2469.) Present DoD Space MDA approved Acquisition Strategy as described in AP4.1.1.

E4.2 <u>Execution Status of Program</u>
a) Summarize program management structure and program office staffing levels to include relevant experience and qualifications of key program office personnel as defined by the SPD/PM.
b) Provide evidence of "New Start" certification/notification.
c) Provide high-level description of what the program entails (e.g., development activities, acquisition issues, security factors, plans for launch and operations of space vehicles and associated ground communications equipment, etc.).
d) Describe program progress made in prior phase. For KDP-A, the discussion would address technologies and/or studies accomplished.
e) Compare current program content and cost to the following documents as appropriate and explain any differences:
    KDP-A: AoA Report and System CONOPS
    KDP-B: KDP-A ADM and/or ADM Updates.
    KDP-C: KDP-B ADM and/or ADM Updates, Phase B APB
    Build Approval: KDP-C ADM and/or ADM Updates, Phase C APB
f) Identify current unit costs if applicable and changes from original program baseline documents as identified in (e) above. Explain all changes.
g) Describe current year financial execution performance.
h) Discuss the use of an Earned Value Management System (EVMS), to include a current EVMS performance assessment and a description of the program office processes for IBRs, Baseline Changes, EVM surveillance, critical path management, and technical performance measures as applicable.
i) Explain efforts to explore and evaluate cooperative opportunities with Allies (Ref: 10 USC 2350a).
j) Provide status/evidence of registering the NSS system with the DoD CIO if applicable. (Registration must occur if the NSS system meets the definition of a Mission Critical Information System or a Mission Essential Information System. (Ref: Pub. L. 106-398, 811)).
k) Provide status of the program's application for Frequency Application Status (Ref: 47 USC 305 & 901-904 and Pub. L. 102-538 Section 104).
l) Provide the status and result of any program related technology assessments and/or technology issues identified by DoD research facilities (Ref: 10 USC 2364).
m) Project the program's executability for the next phase and document the underlying assumptions.
n) At KDP-C, discuss system disposal plans.
o) Summarize Class 1 Engineering change activity and other important decisions made or reviewed by the DoD Space MDA, CAE, PEO, and/or SPD/PM in advance of the KDP.

E4.3 <u>ADM Exit Criteria and Direction at Previous KDP</u> a) Describe how the exit criteria established at the prior KDP review were met. b) Discuss guidance, decisions, and/or Congressional actions made subsequent to prior KDP review and how they were accommodated.
E4.4 <u>Requirements And Architecture Summary</u> a) Present the requirements set that the program is expected to satisfy [to include the ICD, CDD, CPD, and summary of the System Threat Assessment Report (STAR) or other appropriate threat assessment document. Consult DoDD 5105.21 for STAR guidance]. b) Identify when the requirements were validated/approved and the validating/approval agency(ies). Discuss any remaining or ongoing requirements validation/approval activities. c) Describe reasons for requirements shortfalls, waivers, anticipated referrals deviations, and/or deletions or omissions. d) Discuss any remaining requirements validation activity. e) Describe which JROC approved NSSO architectures apply to the system and/or program and explain how this program is in compliance with the relevant NSSO architecture or explain why the system and/or program is not compliant. f) Describe how the system will meet the requirements for mission protection, program protection, system vulnerability, and radiation hardening. For nuclear performance criteria see CJCSI 6811.01A, "Nuclear Command and Control System Technical Performance Criteria" (June 2000) or explain how this instruction is not applicable. g) Describe the Space Situational Awareness (SSA) requirements for the program. h) Discuss Modular Open Systems Approach (MOSA)

IPS Contents
E4.5 <u>System Engineering Process Review and System Engineering Plan</u> a) Provide the Systems Engineering Plan describing the systems engineering processes that have been used to produce results to date and those that will be used in the next phase. Base assessment of key process areas on the Systems Engineering Capability Maturity Matrix Integration (CMM-I) model. Include the processes for requirements analysis, functional analysis/allocation, synthesis, systems analysis and control, verification, and requirements traceability. In addition, for KDP-B & KDP-C and Build Approval: b) Describe how system requirements were identified and flowed down to more detailed interface requirements for the designs. c) Describe mechanisms used to manage and control interfaces throughout the development process. d) Provide verification cross reference matrix(ces) showing the mapping between each requirement and the method(s) to be used for verification of the requirement. e) Show traceability of capability needs to system requirements. f) Show traceability of system requirements flowed down to design components (KDP-C and Build Approval only). g) Describe how "value engineering" principles have been used. Value Engineering means an analysis of the functions of a program and/or project has been performed by qualified personnel with the intention of improving performance, reliability, quality, system safety, and life cycle costs. (Ref: 41 USC 432). h) Describe the status of key systems engineering processes/practices, including how the program is incentivizing the contractors to perform robust systems engineering.

E4.6 <u>Alternatives Assessed and Results</u>
Summarize advantages and disadvantages of each alternative in terms of cost, schedule, and technical/operational performance.
  For KDP-A summarize the AoA results.
  For KDP-B summarize concept/architectural studies.
  For KDP-C summarize design alternatives.
  For Build Approval summarize complete design.

E4.7 <u>Most Promising Alternative and Rationale</u> a) Outline the cost, schedule, and performance assessment of the most promising alternative; if no most promising alternative clearly exists, so state. b) Describe the reasons supporting its selection (e.g., optimum balance achieved between cost and technical risk in meeting defined user needs).
E4.8 <u>Cost Drivers & Major Trade-offs</u> a) Discuss the use of Cost As an Independent Variable (CAIV) or methodologies to balance life cycle costs, schedule, and technical issues while satisfying user requirements. b) Highlight current cost drivers. c) Identify major trade-off decisions affecting cost, schedule, and/or performance that were made in the prior acquisition phase and ones to be made in the future. d) Describe how contractor(s) will be incentivized to meet or exceed cost objectives and program office contractor(s) cost sharing arrangements (overrun/underrun). e) If using a commercial system, describe the strategy to ensure cost goals are met.
E4.9 <u>Risk Management</u> a) Summarize the program's risk management plan. It should include all significant risks (known or potential) that must be addressed in the upcoming acquisition phase (e.g., system threat environment, technology or manufacturing processes, use of commercial practices, government furnished equipment, risk of technical obsolescence, security, dependencies among programs, risk of creating a monopoly for future procurements) in terms of cost, schedule, and/or performance risk. At each KDP and Build Approval, the program office should identify the key technology components of the system and provide their assessment of the maturity of each key component using the Technology Readiness Level (TRL) method identified in the DoD Acquisition Guidebook. The IPAT will review the program office assessment and determine if, in their view, all key technology components of the program have been identified. The IPA will also provide its own independent assessment of the maturity of the key components using the TRL method. The intent is not to require a specific TRL for each key component in order to proceed into the next acquisition phase, but to instead allow for the DoD Space MDA to be made knowledgeable of the state of key component maturity so appropriate direction can be given in the ADM for additional technology maturation/risk reduction activities. b) Specify proposed risk sharing arrangement between program office and contractor(s). c) Identify the component(s) or subsystem(s) most directly affected. d) Discuss risk mitigation strategies, including actual or planned risk reduction efforts being undertaken. e) Present how the maturity of the program's software contractor and software effort was determined (e.g., was the SEI Capability Maturity Model Integration (CMMI) used?) Present the software capability maturity level of the contractor performing the software development and/or software integration and the age of the assessment. (The DoD goal is to use a contractor graded at least CMMI level 3.) Include a thorough discussion of the strategies to be used for reducing software development and integration risk and by KDP-C provide a detailed software development strategy.

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E4.10 <u>Support Issues and Plans</u>
a) Present the manpower resource requirements.
b) Present plans for training.
c) Summarize logistics supportability concepts. Ensure the following key support elements are addressed: Design Interface; Technical Data; Maintenance Planning for both hardware and software (e.g., Organizational and depot Maintenance/SORAP analysis and results; Facilities; Support Equipment; Personnel; Supply Support; Training and Training Support; Packaging, Handling, Storage and Transportation; and Computer Resources Support. In addition, ensure support/is clearly integrated into the SPDs/PMs lifecycle management strategy.
d) Discuss program's planned adherence to related directives, policies, instructions, and regulations.
e) Describe depot maintenance analysis if appropriate.
f) Include schedule for transitioning program to the Lead Command and into sustainment.

E4.11 <u>Architecture Description/Information Support Plan</u>
Describe the program architecture and its interfaces with other systems and architectures; provide an analysis per DoDI 4630.8 of the architectures and interfaces in the ISP.
a) At KDP-A provide the Operational Views (OV) of the integrated architecture. For KDP-B and beyond, complete a Stage I, ISP and provide to NII (using JCPAT) for a DoD-level review. Issues from the review and the ISP will be used in the Preliminary Design Review. Complete a Stage II DoD-wide review NLT IPAT start for Build Approval.   Issues from the review and the ISP will be used in the Critical Design Review. Stage III plan due to ASD(NII) NLT Build Approval for entry as the document of record into the ASD(NII) document repository per DoDI 4630.8. At upgrade decisions a revised ISP will be submitted for DoD-level review. (Ref: 40 USC 1401 and Pub. L. 107-248 section 8088.)
b) Discuss systems in acquisition or operations such as ground communications, tasking and exploitation systems, launch systems, etc.
c) Discuss Space Situational Awareness interface requirements.
d) Discuss interfaces/impacts with other NSS organizational elements and with external organizations.
e) Interfaces/impacts may be of a cost, schedule, and/or performance nature.
f) Address synchronization across programs and among space, ground, user equipment, and other end-to-end program elements and segments. Identify disconnects and any program impacts, including to system segments that are provided through separate acquisition programs not under the SPD/PM control.

E4.12 Clinger-Cohen Act (CCA) Compliance

Document evidence of compliance with the Clinger Cohen Act (CCA) by completing the following matrix and obtaining MILDEP CIO confirmation of the program's answers to the questions in the matrix below (Ref: 8 Mar 2002 USD(AT&L) memo, DoDI 5000.2, Table E.4.T1 and Sec 811 of the FY01 Authorization Act). MILDEP CIO confirmation is required prior to making contract award per Pub. L. 105-261, Subtitle D, Sec 331.

CLINGER-COHEN ACT (CCA) COMPLIANCE TABLE

#	Requirement Related to the Clinger-Cohen Act (CCA) of 1996 (paragraph 4.7.3.2.3.2 within DoDI 5000.2)	Applicable Program Documentation**
1	*** Make a determination that the acquisition supports core priority functions of the Department	MNS/ICD Approval
2	*** Establish outcome-based performance measures linked to strategic goals	MNS/ICD, ORD/CDD, APB Approval
3	*** Redesign the processes that the system supports to reduce costs, improve effectiveness, and maximize the use of COTS technology	Approval of MNS/ICD, Concept of Operations, AOA, and ORD/CDD
4	* No Private Sector or government source can better support the function	Acquisition Strategy page XX, Para XX; AOA page XX
5	* An analysis of alternatives has been conducted	AOA
6	* An economic analysis has been conducted that includes a calculation of the return on investment; or for non-AIS programs, an LCCE has been conducted	Program LCCE
7	There are clearly established measures and accountability for program progress	Acquisition Strategy page XX, Para XX; APB
8	The acquisition is consistent with the Global Information Grid policies and architecture, to include relevant standards	APB (Net-ready KPP) ISP (System Exchanges – SV-6)
9	The program has an information assurance strategy that is consistent with DoD policies, standards, and architectures, to include relevant standards	Information Assurance Strategy
10	To the maximum extent practicable, (1) modular contracting has been used, and (2) the program is being implemented in phased, successive blocks, each of which meets part of the mission need and delivers measurable benefit, independent of future blocks	Acquisition Strategy (e.g., Acquisition Strategy) page XX, Para XX
11	The system being acquired is registered	Registration Data Base

* For weapons systems and command and control systems, these requirements apply to the extent practicable (40 U.S.C. 11103)

** The system documents/information cited are examples of the most likely but not the only reference for the required information. If other references are more appropriate, they may be used in addition or instead of those cited.

*** These requirements are presumed satisfied for Weapons Systems with embedded IT and for Command and Control Systems that are not themselves IT systems.

E4.13 Program Protection Planning, Information Assurance Strategy, and Cryptological Systems

a) Provide the relevant Program Protection Planning (P3) information. Use the P3 description in the Defense Acquisition Guidebook as a content guide for this IPS section. P3 shall include all DoD space systems, interfaces, USG information systems and networks. Consult DoDD 5200.39 for guidance. A P3 at minimum shall address the following elements:

1. List of Critical Program Information (CPI) and Critical System Resources (CSR) to be protected in the system or program
2. List of potential threats to the CPI
3. Vulnerabilities of CPI to threats
4. Result of sensitive technology assessment and technology control plan
5. Classification guides
6. Planned countermeasures to threats
7. Protection costs
8. Foreign disclosure, foreign sales, co-production, and follow-on support plans

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E4.13 Program Protection Planning, Information Assurance Strategy, and Cryptological Systems (continued)
b)   Provide verification that Information Assurance (IA) requirements are considered and addressed during the entire life cycle of the space system. IA shall comply with DoDD 8500.1.
c)   CRYPTO: Identify the crypto needs for the NSS program, both what and when needed. Provide the status of the National Security Agency plans to meet those needs.
      1.   Identify the requirements for the cryptological hardware and model number if known.
      2.   Provide the most current schedule for the development, production, and delivery of the cryptological hardware from the developer.
      3.   Identify in the program schedule when the cryptological hardware is required to maintain the schedule.
      4.   Estimate schedule impacts in terms of time, tasks, additional costs, and other impacts, material and non-material, caused by the late delivery of the cryptological hardware.
      5.   Report if alternative cryptological hardware is available for the program and quantify the impacts to schedule, costs of redesign, costs of changes to test and integration procedures and processes, and other factors as appropriate.

E4.14 Developmental and/or Operational Testing Approach (Ref: 10 USC 139, 2366 2399, and 2400) Use the Defense Acquisition Guidebook as the guide for the test section of the IPS for KDP-A, KDP-B, and for the T&E Strategy that is due to the Director, OT&E prior to KDP-A.) Follow the Defense Acquisition Guidebook for producing the TEMP in preparation for KDP-B, KDP-C and Build Approval. If major changes are not required or the time period between test documentation is too short to support a full TEMP update cycle, the SPD/PM may request an administrative update to the TEMP with minimal coordination determined by the US(D) and DOT&E.
    a)   Describe the overall structure and objectives of the test and evaluation program including use of modeling and simulations, schedule, and required resources.
    b)   Identify the necessary developmental and operational test and evaluation activities.
    c)   Relate the test objectives to critical operational issues, critical technical parameters, thresholds, evaluation criteria, and exit criteria.
    d)   Link requirements verification matrix in operational test plan to validated requirements documents.

E4.15 Program Environmental, Safety, and Occupational Health Evaluation (PESHE)
The SPD/PM shall prepare an initial Program Environmental Safety and Occupational Health Evaluation (PESHE) document by KDP-B and then keep the PESHE updated over the system life cycle. After KDP-B, the updating of the PESHE document will primarily involve the recording of additional data on ESOH risks and HAZMAT in a data management format selected by the program office There is no specific format prescribed for the PESHE; however, the PESHE should include, as a minimum, the following:
    1)   Strategy for integrating ESOH considerations into the SE process;
    2)   Identification of ESOH responsibilities for implementing this strategy;
    3)   Approach to identify ESOH hazards, to assess the risks, to mitigate or avoid those risks, to accept the residual risk and to assess the effectiveness of the mitigations;
    4)   Identification and status of ESOH risks (including the identification of hazardous materials used in the system and the plan for their demilitarization/disposal); and
    5)   Schedule for completing National Environmental Policy Act (NEPA)/Executive Order 12114 Environmental Effects Abroad of Major Federal Actions documentation.

E4.16 Program Office Estimate (POE) and Future Years Defense Plan Implications (Ref: 10 USC 2434)
A subset of the data and inputs provided by the program office to the ICAT should be used for this IPS section to reduce the amount of work on the program office and to ensure the IPAT and ICAT are working from a common cost baseline for the program under review. In this section the program office should:
    a) Present POE on a fiscal year basis for the recommended alternative and how it fits within the FYDP;
    b) Identify costs as nonrecurring and recurring;
    c) Identify source(s) of program funds by appropriation and any projected shortfalls/issues;
    d) Include previous ICA/ICE results for KDP-B and KDP-C;
    e) At the procurement decision, identify whether the current official Service or Agency budget position (e.g., official Program Objective Memorandum, Budget Estimate Submission, and or President's Budget) contains full funding for the procurement of the system.

E4.17 Integrated Master Schedule (IMS) (Ref: DI-MISC-81183A) The SPD/PM shall produce an IMS by KDP-B and then keep the IMS updated continuously. The IMS will be used to substantiate critical schedule dates. The SPD/PM shall conduct a critical path analysis prior to KDP-C and Build Approval.

E4.18 Recommendations (ADM, Exit Criteria, etc.)
    a)   Provide the draft exit criteria to be accomplished either during the upcoming acquisition phase and/or by the next KDP review, and any other DoD Space MDA program direction desired.
    b)   Identify any issues that require resolution or waivers by the DoD Space MDA or higher-level decision authority (Secretary of Defense and/or Director of Central Intelligence).
    c)   Provide draft ADM.
    d)   Provide draft APB for KDP-B & KDP-C and Build Approval.
    e)   Provide draft RFP if applicable.

E5. ENCLOSURE 5: ABBREVIATIONS AND ACRONYMS

ACAT   --   Acquisition Category
ADM   --   Acquisition Decision Memorandum
AFCAA   --   Air Force Cost Analysis Agency
AFSPC   --   Air Force Space Command
ANSI/EIA   --   American National Standard Institute/Electronic Industries Alliance
AoA   --   Analysis of Alternatives
AP1   --   Appendix 1
APB   --   Acquisition Program Baseline
ASD(NII)   --   Assistant Secretary of Defense (Networks and Information Integration)
ASP   --   Acquisition Strategy Panel
BES   --   Budget Estimate Submission
C(2)   --   Command and Control
CAE   --   Component Acquisition Executive
CAIG   --   Cost Analysis Improvement Group
CAIV   --   Cost As an Independent Variable
CARD   --   Cost Analysis Requirements Description
CCA   --   Clinger Cohen Act
CCDR   --   Contractor Cost Data Reporting
CDD   --   Capability Development Document
CDR   --   Critical Design Review
CDRL   --   Contract Data Requirement List
CERs   --   Cost Estimating Relationships
CIO   --   Chief Information Officer
CJCSI   --   Chairman, Joint Chiefs of Staff Instruction
CMM-I   --   Capability Maturity Matrix - Integration
CONOPS   --   Concept of Operations
COTS   --   Commercial Off-The-Shelf
CPD   --   Capability Production Document
CPI   --   Critical Program Information
CSR   --   Critical System Resources
CWBS   --   Contractor Work Breakdown Structure
DAA   --   Designated Approving Authority
DAE   --   Defense Acquisition Executive
DAES   --   Defense Acquisition Executive Summary
DAWIA   --   Defense Acquisition Workforce Improvement Act
DCARC   --   Defense Cost and Resource Center
DID   --   Data Item Description
DoD   --   Department of Defense
DOT&E   --   Director, Operational Test and Evaluation
DSAB   --   Defense Space Acquisition Board
DT&E   --   Developmental Test and Evaluation
EA   --   Evolutionary Acquisition
EO   --   Executive Order
ESOH   --   Environmental, Safety, and Occupational Health Evaluation
EVMS   --   Earned Value Management System
FAR   --   Federal Acquisition Regulation
FFRDC   --   Federally Funded Research and Development Centers

FOC	--	Full Operational Capability
FRP	--	Full-Rate Production
FY	--	Fiscal Year
FYDP	--	Future Years Defense Plan
HAZMAT	--	Hazardous Material
HIS	--	Human Systems Integration
IAD	--	Information Assurance Directorate
IBRs	--	Integrated Baseline Reviews
IC	--	Intelligence Community
ICA	--	Independent Cost Assessment
ICAT	--	Independent Cost Analysis Team
ICD	--	Initial Capabilities Document
ICE	--	Independent Cost Estimate
ILS	--	Integrated Logistics Support
IMS	--	Integrated Master Schedule
IOC	--	Initial Operational Capability
IPA	--	Independent Program Assessment
IPAT	--	Independent Program Assessment Team
IPS	--	Integrated Program Summary
IRSs	--	Interface Requirements Specifications
ISP	--	Information Support Plan
IT	--	Information Technology
J8	--	Joint Staff Force Structure, Resources, & Assessment Directorate
JCIDS	--	Joint Capabilities Integration and Development System
JCPAT	--	Joint C4I (Command, Control, Communications, Computers and Intelligence) Program Assessment Tool (Obsolete - see KM/DS (Knowledge Management/Decision Support (Tool))
JROC	--	Joint Requirements Oversight Council
JTA	--	Joint Technical Architecture
KDP	--	Key Decision Point
LCCE	--	Life Cycle Cost Estimate
LFT&E	--	Live Fire Test & Evaluation
LRIP	--	Low-Rate Initial Production
MAJCOMs	--	Major Commands
MDA	--	Milestone Decision Authority
MDAPs	--	Major Defense Acquisition Programs
MILDEP	--	Military Department
MIL-HDBK	--	Military Handbook
MIL-STD	--	Military Standard
MNS	--	Mission Need Statement
MOSA	--	Modular Open Systems Approach
MRB	--	Mission Requirements Board
NCCA	--	Naval Center for Cost Analysis
NCG	--	NRO Cost Group
NEPA	--	National Environmental Policy Act
NLT	--	No Later Than
NRO	--	National Reconnaissance Office
NSA	--	National Security Agency
NSDD	--	National Security Decision Directive
NSS	--	National Security Space

NSSA	--	National Security Space Architect
NSSO	--	National Security Space Office
OMB	--	Office of Management and Budget
ORD	--	Operational Requirement Document
OSD	--	Office of the Secretary of Defense
OT&E	--	Operational Test and Evaluation
OTA	--	Operational Test Agency
OV	--	Operational View
P3	--	Program Protection Planning
PA&E	--	Program Analysis and Evaluation
PB	--	President's Budget
PDR	--	Preliminary Design Review
PEO	--	Program Executive Officer
PESHE	--	Programmatic ESOH Evaluation
PL	--	Public Law
PM	--	Program Manager
POC	--	Point of Contact
POE	--	Program Office Estimate
POM	--	Program Objective Memorandum
PPBE	--	Planning, Programming, Budgeting, and Execution Process
RDT&E	--	Research, Development, Test, and Evaluation
RFP	--	Request for Proposal
SAF/US(D)	--	Under Secretary of Air Force Deputy for Space
SAR	--	Selected Acquisition Report
SARAP	--	Source of Repair Assessment Process
SBE	--	Single Best Estimate
SDR	--	System Design Review
SE	--	Systems Engineering
SecAF	--	Secretary of the Air Force
SEI	--	Software Engineering Institute
SETA	--	System Engineering and Technical Assistance
SMC	--	Air Force Space and Missile Systems Center
SPAWAR	--	Space and Naval Warfare Systems Command
SPD	--	System Program Director
SRDR	--	Software Resources Data Report
SRR	--	SRR System Requirements Review
SRSs	--	Software Requirements Specifications
SSA	--	Space Situational Awareness
STAR	--	System Threat Assessment Report
SV	--	Systems View
T&E	--	Test and Evaluation
TBD	--	To Be Determined
TBR	--	To Be Resolved
TEMP	--	Test and Evaluation Master Plan
TRA	--	Technology Readiness Assessment
TRL	--	Technology Readiness Level
TV	--	Technical View
UCR	--	Unit Cost Report
USC	--	United States Code
USD(AT&L)	--	Under Secretary of Defense (Acquisition, Technology, and Logistics)

USecAF   -- Under Secretary of the Air Force
USSTRATCOM   -- United States Strategic Command
VCJCS   -- Vice Chairman of the Joint Chiefs of Staff
vMFP   -- virtual Major Force Program
WBS   -- Work Breakdown Structure